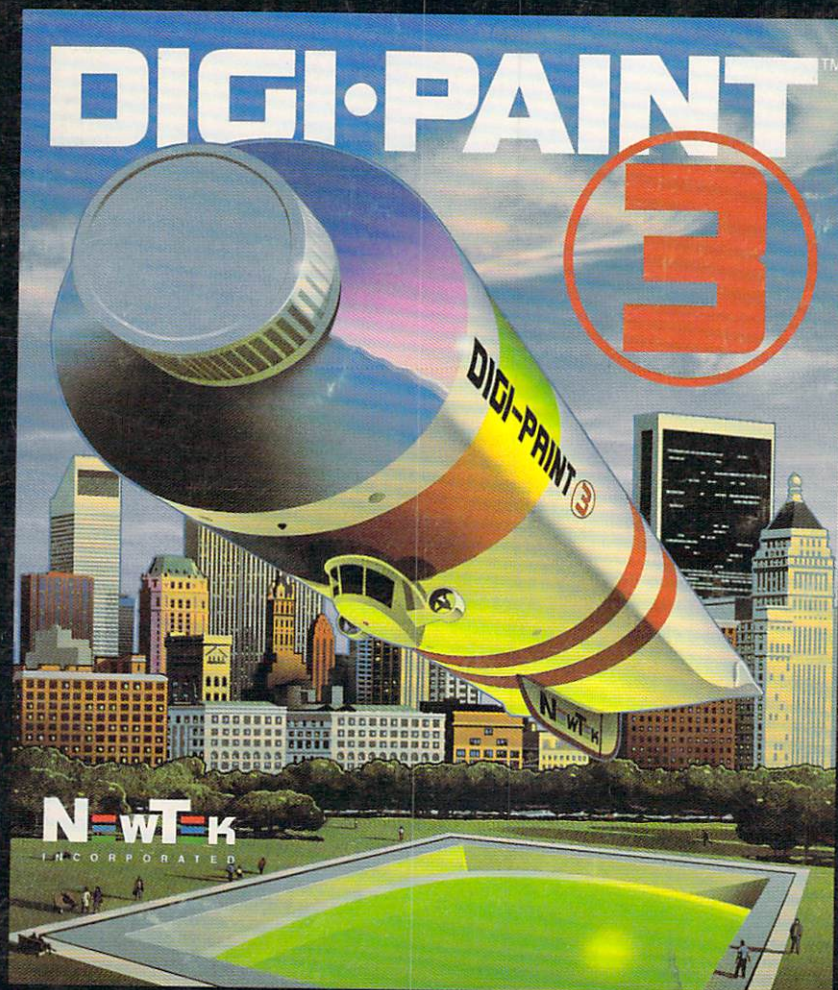
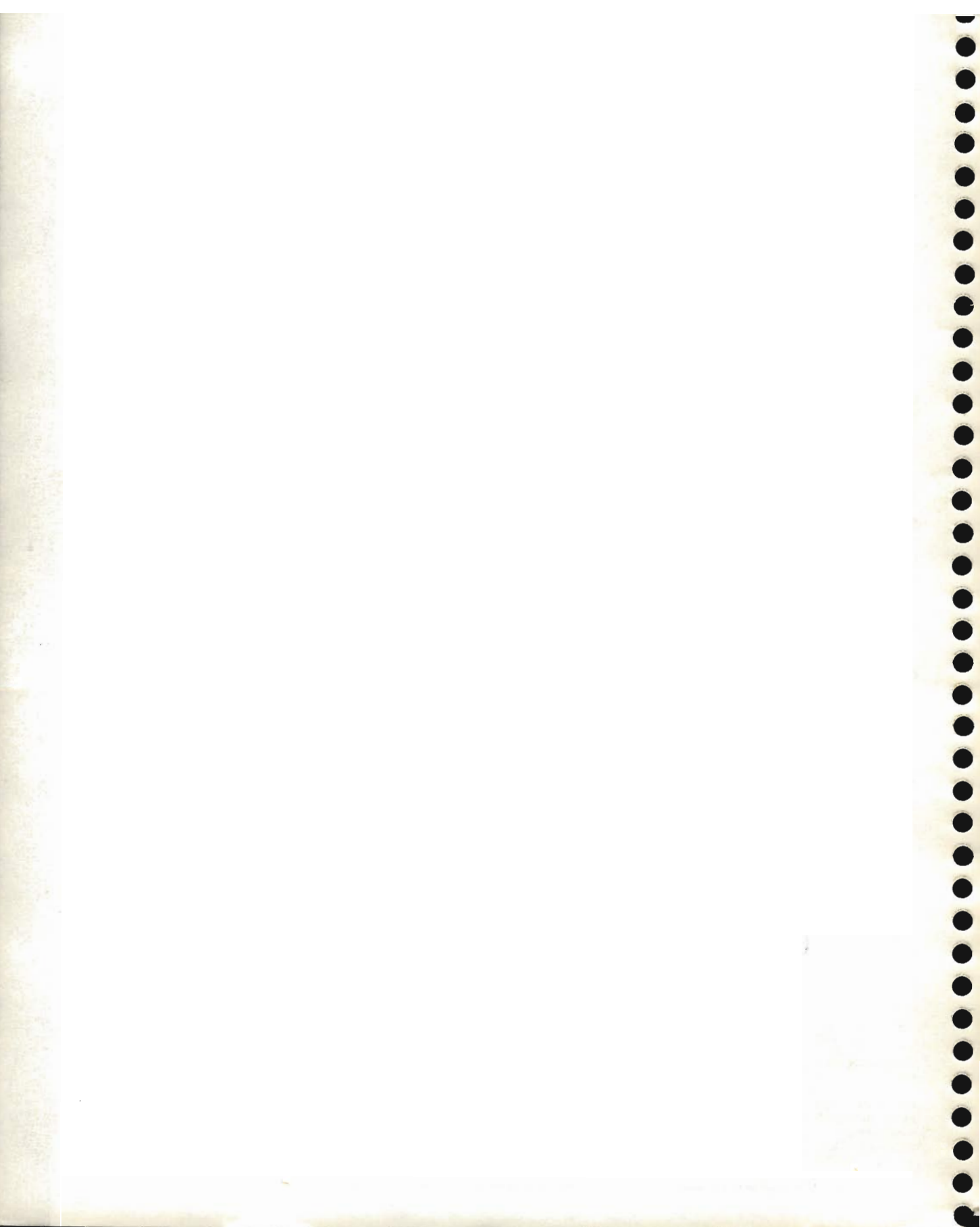






DIGI-PAINT 3

Manual

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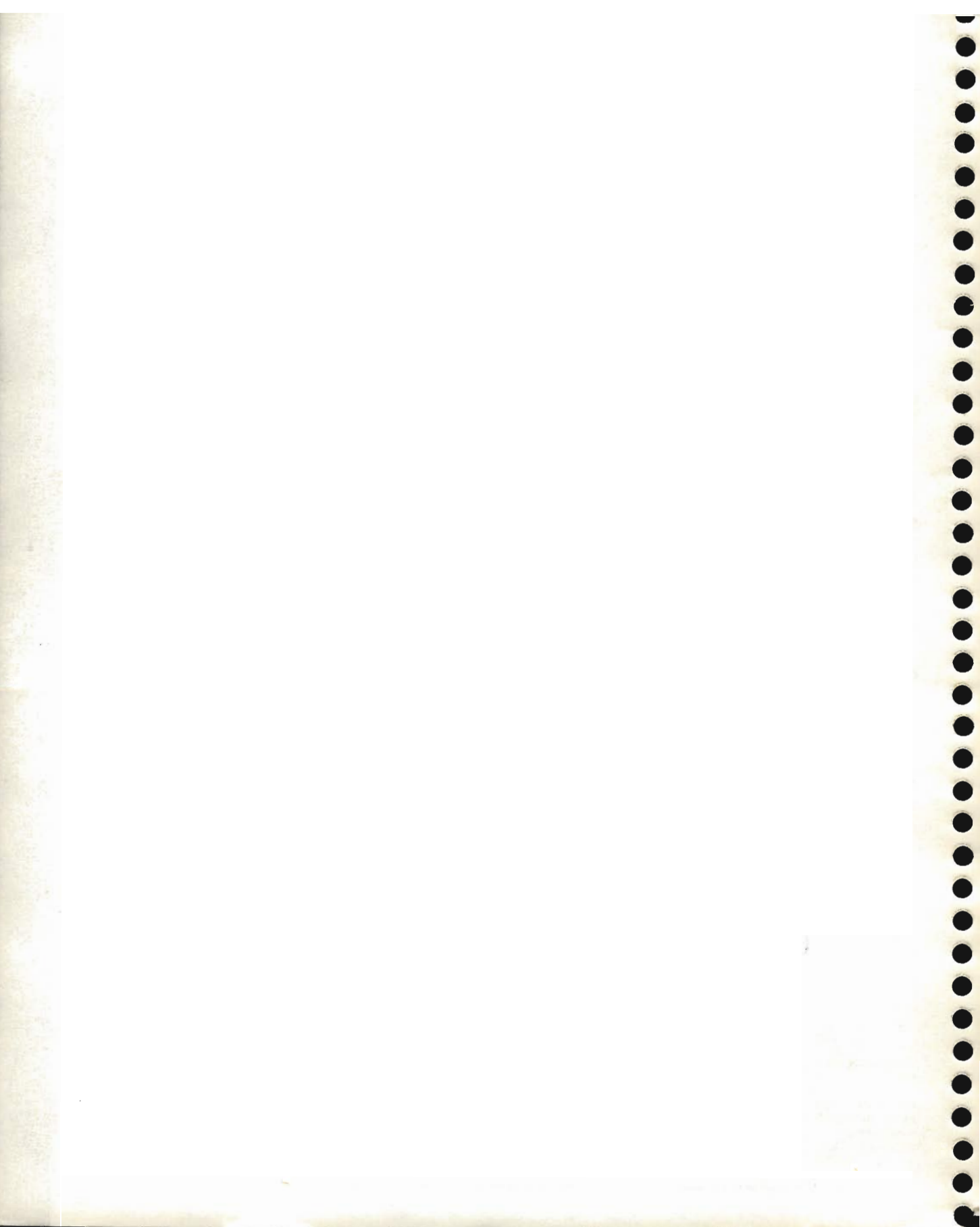
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Introduction

Digi-Paint 3 is a software program for electronic painting and image manipulation that allows you to use the maximum graphics power of your Amiga. With Digi-Paint 3, you can create, manipulate, and display images using the Amiga's remarkable display mode called Hold And Modify (HAM for short). This special mode lets you use all of the Amiga's 4096 colors on screen at once, unlike most paint programs which allow only 32 or perhaps 64 colors on screen. Digi-Paint 3 breaks this "32 color barrier" and gives you access to all 4096 colors, thus allowing much more realistic images and a variety of special effects like transparency that are only possible when you have a large number of colors available.

Digi-Paint 3 provides tools to manipulate images by drawing lines, dots, circles, and squares. Unlike other paint programs, Digi-Paint 3 also has special features such as user-controllable 3D texture mapping and transparency controls, and eleven different drawing modes that help you get the best use out of the thousands of colors now available.

Digi-Paint 3 displays images in either Amiga's low resolution or low resolution interlace; in those resolutions, you can have a Canvas (screen area on which to paint) of up to 1024 pixels in either the horizontal or vertical direction. (This is limited by available CHIP RAM; with the newly-available 1 megabyte CHIP RAM, the maximum screen size is 960 × 960 pixels.) You can use overscan or severe overscan display as well, for compatibility with video. Digi-Paint 3 reads standard IFF picture files, so any picture you've created with another graphics program or with Digi-View Gold can be read into Digi-Paint 3. You can use any part of any painting as a brush and apply it to the screen in any one of 11 different drawing modes for different visual effects. Digi-Paint 3's spare screen allows you to work with two pictures at once to combine or merge them using different special effects.

The Transfer 24 software contains powerful image manipulation controls and allows you to convert images to other Amiga display resolutions, including hi-res overscan of up to 768 × 480 pixels.

Digi-Paint 3 follows standard Amiga conventions regarding use of the mouse: point by moving the mouse, activate things with the left button, click and drag to draw, access menus with the right button. If you're familiar with other Amiga programs, Digi-Paint 3 is easy to use. The new interface has been rendered by noted Amiga artist Jim Sachs and is designed to provide easy access to Digi-Paint 3's many features. Keyboard options are also provided to make Digi-Paint 3 even more flexible.

Although this manual covers all of the basics of using Digi-Paint 3, there are so many possible combinations of features that it would take many volumes to cover them all. So this manual will serve to introduce you to the power of Digi-Paint 3, but you will find many more capabilities as you continue to use and experiment with the program. Please write to us and let us know about the things you've discovered, so that we can pass that information along to other users.

How To Use This Manual

If you are totally unfamiliar with the Amiga, we recommend that you read the *Introduction to the Commodore Amiga* manual included with your computer before using Digi-Paint 3. Generally, this manual assumes some familiarity with computers (the Amiga in particular); if you're familiar with the Amiga, you'll find Digi-Paint 3 quite easy to use.

The manual is organized so you can get started right away. Most people like to ignore the manual as much as possible, because after all you really want to use the software instead of read the manual. If you're that type of person, no problem. Start the software by double-clicking the Digi-Paint 3 icon (like you would start most other Amiga software) and start experimenting. You won't hurt anything. When you have questions, refer to the Reference section of this manual for concise explanations of each feature.

For those of you who want something a little more structured (and can avoid the temptation to throw down the manual and rush to use the software), the Digi-Paint 3 manual contains a Guided Tour to briefly display some of the major features, some Tutorials to illustrate the use of Digi-Paint 3, an Applications section that discusses various uses of Digi-Paint 3, and the aforementioned Reference section where all the features of Digi-Paint 3 are listed and explained.

Everyone should read the Guided Tour section for a quick introduction to Digi-Paint 3's structure and some of the basic features (like loading files). After that, a complete approach would be to read and perform the Tutorials, then read the Applications and browse through the Reference section. After the Reference section, Transfer 24 (the image processing software included with Digi-Paint 3) is described in detail. The Appendices provide some useful information, particularly Appendix A, which summarizes the keyboard commands for Digi-Paint 3.

Chapter 1

1

Getting Started

Chapter 1: Getting Started

1

Your Digi-Paint 3 package should include the following items:

- Digi-Paint 3 disk
- Transfer 24 / Art disk
- Manual
- Registration card

First, before you start using the software, you should make a backup copy of both disks. This software is not copy-protected; use the standard AmigaDOS copy procedures (see your Amiga manual for details) to copy both disks onto new disks. Put the originals away in a safe place and only use the copies. If something happens to the copy and it no longer works, then make a new copy from the original disk.

Please fill out the registration card and send it in immediately. This serves two important purposes: it lets us know more about you so that we can create better products, and it puts your name on file so that we can notify you of product upgrades.

Hardware Requirements

Digi-Paint 3 requires an Amiga with at least 512K of memory and one disk drive running KickStart 1.2 or higher. Digi-Paint 3 is compatible with the Amiga 500, 1000, 2000, and 2500. Digi-Paint 3 is optimized for the 68020, so it will take advantage of any accelerator card (or the A2500's built-in 68020) to improve performance.

The recommended configuration is two disk drives and 1 megabyte of memory. Some features are not available unless you have at least 1 megabyte of memory. When low memory is a problem, you may not be able to cut out large brushes or use other features. The screen flashes to indicate that Digi-Paint 3 was unable to perform an action due to low memory.

Hard Disk Installation

1. Create a Digi-Paint3 drawer on your hard drive.

- Click the **Empty Drawer** icon to select it
 - Choose **Duplicate** from the Workbench menu to create a new drawer named **copy of Empty**
 - Rename **copy of Empty** by clicking it and choosing **Rename** from the Workbench menu. Erase the name **copy of Empty** and type in **Digi-Paint3** and press **Return** to give you your new drawer
2. Move the icons from the Digi-Paint 3 disk to the Digi-Paint3 drawer (you must copy the **DigiPaint**, **DigiPaint.KEYS** and **DigiPaint.GADS** icons for the program to boot properly from the hard drive).

- Put the Digi-Paint 3 disk in any drive and double-click the disk icon to display the contents of the disk
 - Click the **Digi-Paint 3** icon and then while holding down the **Shift** key click on all of the other icons so that the entire contents of the disk are selected
 - While still holding down the **Shift** key, drag the icons so that your pointer is over the **Digi-Paint3** drawer icon you just created on your hard drive. Release the mouse button and the contents of your disk are copied to the Digi-Paint3 drawer.
3. Repeat step 2 for the Transfer 24 disk.

Chapter 2

What's New

2

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Chapter 2: What's New

This section describes how some of the features found in Digi-Paint have been changed in Digi-Paint 3. Those of you that have used Digi-Paint will find Digi-Paint 3 to be a completely new program. This section gives you some idea of what's new, but the best way to get familiar with Digi-Paint 3 is to go through the Guided Tour and at least browse through the Reference to learn the program.

The interface has been redesigned to add new features and make features more accessible. A number of drawing tools have been added, as well as variable brush sizes. Complete text rendering controls are contained in one section of the new Toolbox. The palette has been expanded to make color selection easier. The Shading mode has become Transparency Controls that work in any drawing mode. Texture mapping controls and smoothing controls have also been added.

A number of the drawing modes have changed; their functions have been put into other drawing modes. New drawing modes such as Range painting and Texture Mapping have been added. And the Size interface lets you choose screen sizes up to 1024 pixels high or wide (limited by available CHIP RAM) without quitting the program.

Effects

Double and Halve from the Effects menu can now be done using TxMap mode (see the Resizing tutorial). A "Mirror Flip" is accomplished by selecting a custom brush and using the **Flip** commands from the **Effects** menu. Soften can be done with more precision using the **Blur** drawing mode; it then applies to whatever part of the screen that you draw on. "Switch Halves" can be performed by cutting out half the screen as a custom brush, select **Copy This Brush**, then cut out the other half of the screen. Paste the new half down on the other side, then **Exchange Brushes**, then paste down the brush on the other side.

Drawing Modes

Blend, Tint, and Light Tint can all be duplicated by using the Transparency Controls. Turn **Dithering** off, then adjust the Transparency with the Hotspot set to the entire area. Digi-Paint 3 gives you a much finer level of control over Tinting by using this method. Minimum mode has been replaced by **Darken** mode, and Maximum has been replaced by **Lighten** mode. The functions of Add and Subtract have been replaced by **Colorize**, which gives you a much more intuitive way of adding colors to the screen. Finally, Shading mode has been replaced by the Transparency Controls and by **Range** mode, giving you much greater control over shaded drawings.

NOTES

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Chapter 3

Guided Tour

3

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3

Chapter 3: Guided Tour

This section is designed to quickly familiarize you with Digi-Paint 3's basic features. Keep your manual handy next to the computer; you'll be following the explanations in the Guided Tour while using Digi-Paint 3.

Digital Painting

Using a computer to create artwork has only recently become commonplace. The advent of the Amiga with its low cost and high resolution 4096 color graphics makes it possible for an even wider audience to create high-quality computer images.

Computer generated artwork can be thought of as digital painting (as opposed to traditional, "analog" painting methods). This is a medium of expression just as oil painting is a different medium than watercolor. Like learning to paint in any new medium, digital painting requires a new perspective on how you create artwork. While any paint program lets you change each pixel individually, trying to create an image in that fashion would take a very long time. Fortunately, Digi-Paint 3 offers a number of powerful features that make it possible to create complicated effects in a few moments.

One of the most important features of digital painting with Digi-Paint 3 is the ability to **Undo** and **Repeat** an action. If you didn't like the last splotch of paint, **Undo** it and it disappears. Then you can change color, paint mode or transparency level and **Repeat**, and the action is re-done with the changes you have made. This gives you the freedom to experiment without fear of ruining your artwork.

It may seem odd at first to paint by using a "mouse" instead of a brush or a pencil, but you'll quickly adjust. The medium of digital painting has its limitations, but the advantages make it a powerful and expressive medium.

Starting Up Digi-Paint 3

Before we proceed, let's clarify a few terms that are used repeatedly in this manual.

Basic Terminology

These terms are already familiar to you if you're an experienced Amiga user.

Click: The operation of moving the pointer over something on the screen and then pressing the left mouse button.

Drag: Hold down the left mouse button as you move the pointer.

Double-click: The operation of moving the pointer over something on the screen and then pressing the left mouse button twice in rapid succession.

Pull down: Hold down the right mouse button to display the Menu Bar; move the pointer over the designated menu, then move the pointer downward until the desired command is highlighted, then release the mouse button.

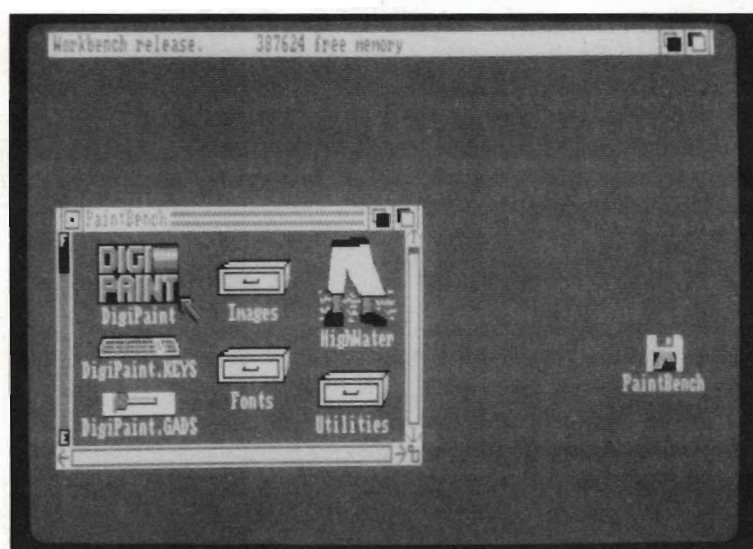
Select: Click on a gadget (one of the icons or little pictures in the Toolbox); when selected, it is highlighted.

Loading Digi-Paint 3

- Turn on your Amiga.
- At the **Workbench** prompt, put the **Digi-Paint 3** disk into the internal (df0:) disk drive.

The Workbench included with Digi-Paint 3 loads in.

- Double-click on the **Digi-Paint 3** disk icon to “open” the icon.
- You’ll see the **Digi-Paint 3** icon (see Figure 3.01); double-click on the icon to start up Digi-Paint 3.



*Figure 3.01
Digi-Paint 3 icon
on the Workbench*

After a brief pause a black screen appears with the “Toolbox” at the bottom (see Figure 3.02). The black area is called the Canvas in Digi-Paint 3; this is where you can paint with the tools of Digi-Paint 3, bring in images, and manipulate images. The Canvas can be larger than the screen; in that case, the screen acts like a window over the part of the Canvas that it can display. The Toolbox is where you’ll find the various features available in Digi-Paint 3, and (when you hold down the right mouse button) the menus are where other commands are available.

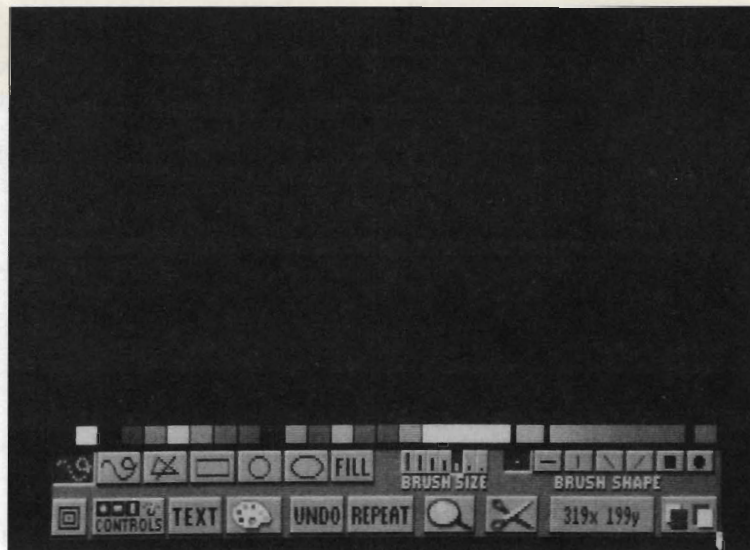


Figure 3.02
Canvas with
Toolbox

Digi-Paint 3 Structure

The various features of Digi-Paint 3 are found in the Toolbox. The Toolbox is the area at the bottom of the screen that consists of the Color Strip and one of four different Sections below the Color Strip (as shown in Figure 3.03). When the right mouse button is held down, the Color Strip is replaced by the Menu Bar, where a number of features are accessed by pulling down one of the six Menus. The four Sections of the Toolbox are the Tools (which appears when you first start up Digi-Paint 3), Controls, Text Rendering, and Palette.

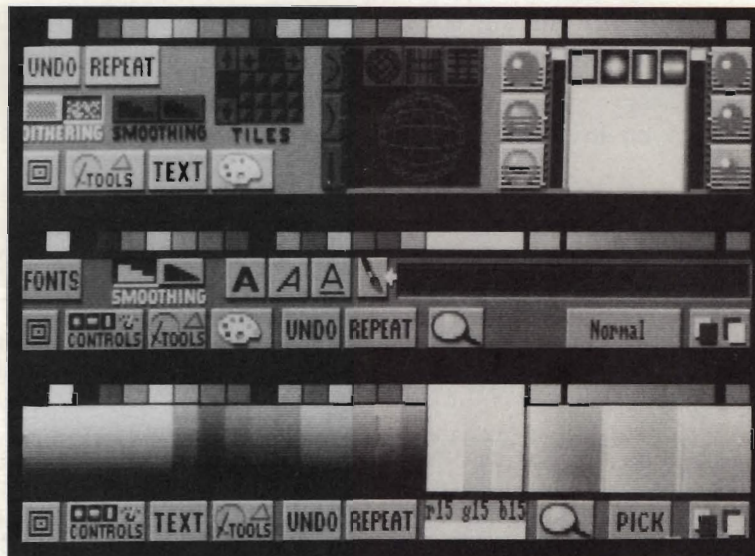


Figure 3.03
Toolbox Sections

These Sections are displayed by clicking the appropriate icon in the lower left corner. The Tools section contains the basic drawing tools and brushes for putting paint on the Canvas. The Controls section contains the Warping and Transparency controls, as well as the Dithering and Smoothing controls. The Text Rendering section contains a number of font rendering controls for creating text. Finally, the Palette section contains color selection controls where you can select the desired color for painting. Each Section is described in greater detail in the Reference Section.

The pointer changes as you move into the Toolbox. While over the Color Strip, it becomes a left-facing arrow (the Color Picker); while over the Toolbox Section, it becomes the standard pointer; while over the Canvas or the Brush Size or Brush Shape area, the pointer becomes the current brush selected.

Painting

Now that Digi-Paint 3 is active, we're ready to begin a tour of its features. When you move the pointer into the Canvas area of the screen, a round white dot appears where the pointer was; this is the current brush in the current selected color (this is a medium sized circle brush with white paint). Painting is easy:

- With the pointer located anywhere within the Canvas (where it becomes a brush), press and hold the left mouse button and move the pointer. A white trail appears wherever you move the pointer. When you release the button, the paint stops appearing.

If you approach the Toolbox when you paint, the Toolbox disappears to allow you to paint "behind" it.

- Click the right mouse button to bring back the Toolbox.

You can paint with any color from the Amiga's 4096 color palette. At the top left of the Toolbox is a row of 16 colors in small rectangles (called the 16 Color Palette).

- Click on any one of the 16 Color Palette rectangles to select that color.

The current brush changes color to match the newly selected color; at the same time, the long rectangle (called the Current Color Bar) next to the 16 Color Palette also changes to the selected color. Now paint some more with the new color. Try selecting other colors among the 16 and then painting.

The Toolbox contains different Brush Shapes, located at the upper right of the Toolbox below the colors on the top bar. The circle brush is highlighted currently, because that is the brush in use.

- Click on the icon next to the circle to select the square brush.

Draw a few lines on the screen with that brush, and try out a few of the other brush shapes. You can also use any of these brush shapes (with the exception of the one-pixel brush at the far left) in any one of 7 sizes.

- Click on one of the seven **Brush Size** icons to select that size brush or hold down the left mouse button over the Brush Size area and move the brush to the left to enlarge it, or to the right to shrink it. Try painting with different sizes of the various brush shapes.

The Toolbox also contains Drawing Tools for creating standard shapes. Currently the **Freehand** Tool is highlighted, showing that it is the tool in use.

- Click the **Rectangle** icon to select that tool.
- Now click in the canvas, and while still holding down the left mouse button, drag out the resulting rectangle to about two inches square and release the mouse button.

A rectangle is quickly drawn on the screen using the current color and brush shape. You can also draw a filled rectangle.

- Click the **Fill** icon to select it, and draw a filled rectangle.

You can choose any of the other drawing tools and use them in a similar fashion, except for the **Polygon/Straight Line** tool. To use that tool:

- Click the left mouse button on the Canvas, drag out a line, click the left button again to set a new end point, and continue until you have the shape you want.
- Then click the right mouse button to complete the polygon.

Clearing the Canvas

By this time the Canvas is probably getting quite crowded with doodling. Let's clear the area to try some more features of Digi-Paint 3.

- Select the black color in the 16 Color Palette (click on the color to the far left of the 16 Color Palette).
- Press the right mouse button and hold it down. The Toolbox disappears and the Menu Bar appears.
- While still holding down the right mouse button, move the pointer to the word **Picture**. The Picture menu drops down.
- Move the pointer to the word **Clear**; when it is highlighted, release the mouse button. The Canvas is cleared to the black you selected. (Or press **Shift-k** on the keyboard to clear the screen to the leftmost color in the palette.)
- If you ever change your mind after clearing the screen, click the **Undo** button to "unclear" the Canvas; click **Undo** again to bring back the cleared Canvas. The **Undo** button is a very powerful command that "takes back" the last action you performed.

The Palette

You can choose any one of the Amiga's 4096 colors as your painting color.

- Click the **Palette** icon at the bottom of the Toolbox (fourth icon from the left); the Toolbox displays the Palette section (see Figure 3.04).

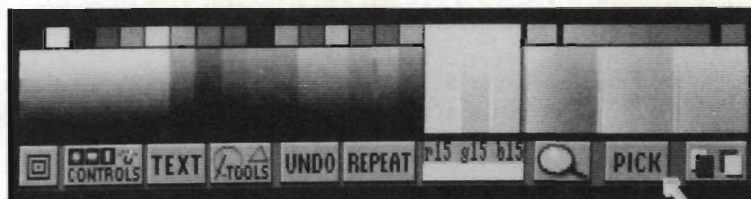


Figure 3.04
Palette Controls

- Move the pointer over the three Color Selector squares (at the right of the Palette section) as you hold down the left mouse button. The colors change as you move the pointer; the Current Color Bar at the top of the Toolbox shows the color you've selected.
- Choose any color by releasing the mouse button.

Now paint with that color, and try several others as well.

You'll notice that as you draw and lay colors over one another, some "fringe" colors may appear; when you release the mouse button, the "Zz" sign will replace the pointer and those fringes will be erased. Sometimes, however, a trace of another color remains at the edge of what you drew. This happens because Digi-Paint 3 uses the HAM display mode of the Amiga, and this display mode places certain constraints on the colors that appear on the screen (see Appendix B for a discussion of HAM mode and Digi-Paint 3).

Loading a Picture

Now let's load a picture into Digi-Paint 3.

- Press and hold the right mouse button, and move once again to the **Picture** menu.
- While holding down the mouse button, move the pointer down until **Load** is highlighted, then release the mouse button. The File Requester then appears.
- Click on the disk drive gadget (in the upper left corner of the File Requester window) where your Digi-Paint 3 disk is located (usually in **df1:** or **df0:**; the **dh0:** refers to a hard disk drive, if you have one).

The drive whirs for a moment and the files and drawers available on the disk appear. Drawers and volumes appear in white letters; files appear in gray letters. Each volume (usually a disk) present appears at the top of the requester; you can open a volume by clicking it. This is the same as clicking the drive name buttons (like **df0:**), but not all volumes are present as buttons (the RAM disk, for instance, only appears as a volume name).

- Open up the drawer labeled **Images** by clicking it with the left mouse button. The disk drive whirs and you see a list of the pictures included with Digi-Paint 3.
- Select the picture named **Fashion** by clicking on it with the left mouse button (the name appears in the box at the top of the File Requester).
- Click on the **Open File** button in the upper right corner of the File Requester.

A requester appears at the bottom of the screen asking you if you want to use the color palette from the file or the Palette on display.

- **Load Palette from File** is highlighted, so click **OK**. The picture loads in from disk and is displayed on the screen.
- Click the **Close** icon in the bottom left corner of the Toolbox to close the Toolbox so you can see the entire image. (Or press **Esc** on the keyboard to hide or retrieve the Toolbox.)
- Click the right mouse button to bring back the Toolbox.

Creating a Custom Brush

Let's experiment with some of the special Tools.

- Click the **Tools** icon to display that section of the Toolbox.
- Select the **Rectangle** tool and click the **Scissors** icon. The cursor changes to a pair of scissors. You can now cut out any part of the image and use it as a custom brush. Any Drawing Tool could be used in this manner by selecting it and then selecting Scissors.
- Draw a rectangle around one of the eyes of the woman in the image. When you release the mouse button to complete the rectangle, a copy of the area underneath the rectangle has been made into a custom brush.
- Move the pointer somewhere else on the Canvas (the middle of her forehead, for instance) and click. The eye is painted down on the image where you clicked.
- Click **Undo** to remove it.

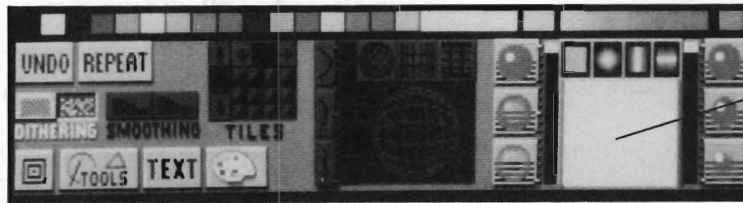
Transparency

Now let's try making the eye blend in with the background better. For this, we need to use the Transparency controls.

- Click the **Controls** icon.

The Toolbox changes to show the Controls section. At the far right of the Toolbox are the Transparency controls (see Figure 3.05). There is a vertical slider on the left (the Hotspot Transparency slider), a large white square with four buttons

on top (the Hotspot Locator and the Hotspot Selectors on top), and a vertical slider on the right (the Edge Transparency slider).



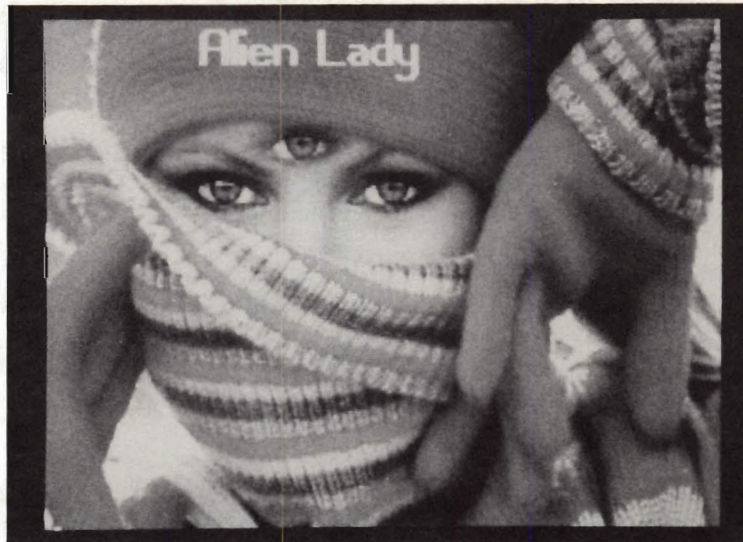
*Figure 3.05
Controls section
Transparency
controls*

- Click the **Point Hotspot** button (second button from the left on top of the white square).

The Hotspot Locator now displays a small white square on a shaded background. This white square is the “hotspot” for the Transparency Control, determining where the center of the transparency will be in any shape you draw.

- Drag the **Edge Transparency** slider down to the bottom to make the edge of the brush entirely transparent.
- Now move the pointer to the middle of the woman’s forehead and stamp down the “eye” brush by clicking.

In a moment, you’ll see the third eye blended in with the background (see Figure 3.06)



*Figure 3.06
Fashion Woman
with Third Eye*

You can try out different transparency settings by adjusting the Transparency sliders or the Hotspot Locator, then clicking **Undo** and then **Repeat**. The **Repeat** function duplicates the last drawing action with the current Control settings, and is therefore an easy way to try out variation in settings.

Using Text

Finally, let's add a title to our picture.

- Reset the Transparency Controls by clicking the first button on the left in the Hotspot Selectors; this turns off Transparency (and brings back the solid white square to show this).
- Click the **Text** icon (third from the left at the bottom of the Toolbox) to display the Text Rendering section of the Toolbox (see Figure 3.07).



Figure 3.07
Text Rendering
section

- Click on the white color in the 16 Color Palette to select that as the current color.
- Click in the Text Entry Window (the long black rectangle on the right side of the Toolbox).
- Now type **Alien Lady** and press the **Return** key.

The words appear as a custom brush; stamp it down on the image by clicking, and you have a title.

This title used one of the Amiga's standard fonts; other fonts are accessible by clicking the **Fonts** button, finding the desired font on disk and loading it in.

The Tour Ends

This short tour has only touched a few of Digi-Paint 3's many features. Now that you're familiar with the general layout of the program, you can continue to experiment on your own to find out more about Digi-Paint 3. However, we suggest you work through the Tutorials, then read the Applications section for some ideas on how to use Digi-Paint 3 more effectively. Before you go on, we strongly recommend that you **MAKE A WORKING COPY OF YOUR DIGI-PAINT DISK** and store your original in a safe place. After this point, you should never use your original Digi-Paint disk again except to make another working copy in case your first copy is somehow damaged.

NOTES

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Chapter 4

Tutorials

4

NOTES

4

Chapter 4: Tutorials

Learning to use a program like Digi-Paint 3 is much easier when you actually try to do something useful with it. The purpose of these tutorials is two-fold: to teach you how the software works, and to show you some useful combinations of features. By using some of Digi-Paint 3's tools in combination, many different effects are possible. As you explore the program yourself, you'll happen upon many that aren't even hinted at here.

The tutorials are designed to be completed in a few minutes. This means that images you produce may not be great artwork, but the intent is to demonstrate how the program works. However, you will find that Digi-Paint 3 can produce very nice results without a lot of effort. You may want to experiment with some of the settings described in the tutorials; this is a great way to learn more about features.

While the tutorials progress more or less in order, you can take them in any order you please. If you're interested in a particular feature, go straight to that tutorial and try it out. Just make sure that all of the controls and drawing modes are set back to Digi-Paint 3's default settings (do this by pressing the **TAB** key on the keyboard), so that you don't get confused by the tutorial's instructions.

NOTE: Some of the Tutorials that use the Swap Screen require 1 megabyte of ram.

When you've completed the tutorials, look to the Reference section for more detailed explanations of the features. Also, don't hesitate to try your own variations on the tutorials. Adjust the controls a different way; choose different colors. There's always the **Undo** button handy to whisk away your mistakes. The **Repeat** key is also a handy way to try out variations on a theme: draw something, change the controls, Drawing Mode, or colors, then click the **Repeat** button and Digi-Paint 3 draws the same thing you drew before with the new control settings.

Refer to Appendix A for a complete listing of all the Toolbox icons.

Without further ado, let's learn how to use some of the features of Digi-Paint 3.

Tutorial 1: Sphere

This first tutorial shows you how to create a sphere. First, start up your Amiga and load Digi-Paint 3.

- Select the one-pixel brush.
- Select the **Circle** tool.
- Select the **Fill** gadget.
- Draw a circle about two inches across.

So far, this is just a plain circle. Now we'll use one of Digi-Paint 3's Drawing Modes to create the illusion of three dimensions.

- Click the right mouse button to bring back the Toolbox.
- Click **Undo** to remove the circle you just drew.
- Pull down **Range** from the **Mode** menu.

Just to double-check that Range Mode was indeed selected, look at the box in the lower right corner of the Toolbox (just to the left of the Front/Back gadget). Inside the box it should now say **Range**. If it says **Normal** or any other term, go back to the Mode menu and select **Range** again, taking care to release the mouse button only when the word **Range** is highlighted.

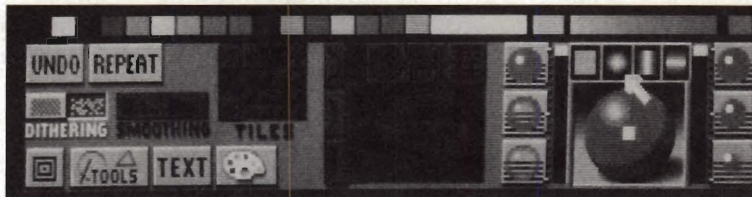
Now that Digi-Paint 3 is in Range Mode, the Current Color is no longer used. Instead, the Range Colors are used; these are located at the right-hand end of the Color Strip at the top of the Toolbox.

- Now draw a circle about two inches across.

This circle has yellow in the center shading out to red at the edges. While it definitely has more texture, it still doesn't resemble a sphere. For that effect, the Transparency controls are necessary.

- Go to the Transparency controls by clicking on the **Controls** gadget (second icon from the left in the lower left corner of the Toolbox).

The Toolbox displays a new set of icons; the Transparency controls are located at the far right of the Toolbox (see Figure 4.01).



*Figure 4.01
Controls*

*Transparency
controls*

- Click the **Point Hotspot** button (second button from the left on top of the Hotspot Locator).

The Hotspot Locator displays a small white square in the middle. This white square is the "hotspot" for the Transparency control, controlling where the left hand Range Color is located in the object you draw.

- Drag the hotspot to the upper left corner, about 1/4 inch from the top and side of the box.

This creates the effect of a light source coming from the upper left.

- Moving the pointer to the Canvas, drag out a circle about 2 inches across and release the mouse button.

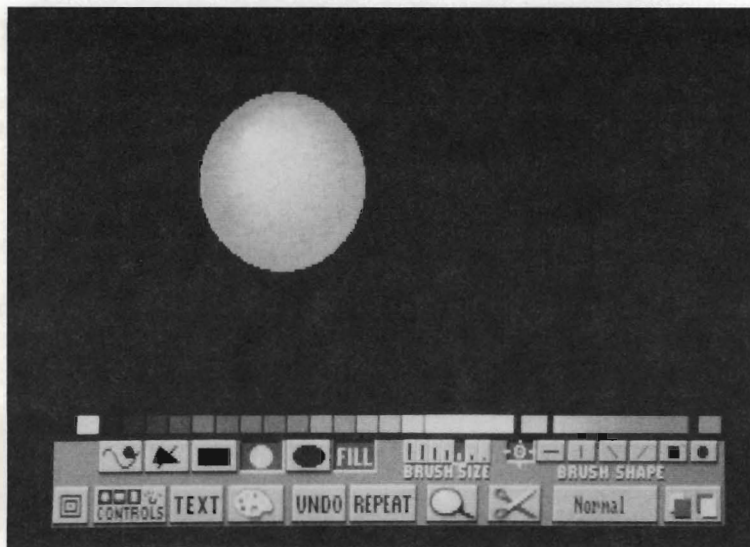
As you can see, the circle now looks like a sphere. There's one more thing we can do to increase the illusion, which is to add a highlight.

- Pull down **Normal** from the **Mode** menu to return to normal drawing mode.
- Select white from the 16 Color Palette.
- Drag the right-hand slider of the Transparency controls all the way to the bottom.

This will make the edges of the circle you draw transparent, thus blending in the highlight.

- In the upper left corner of the sphere you drew, where the yellow color is centered, drag out a very small circle (about the size of a dime or less).

A white highlight is added, with the edges blending into the sphere. If you didn't get the position quite right, click **Undo** and try again. Figure 4.02 shows what the sphere should look like.



*Figure 4.02
Sphere*

You may want to save this picture for use in some of the other tutorials.

- Pull down **Save** from the **Picture** Menu so that the File Requester appears

If you don't have a data disk handy, format one now. One of the advantages of the Amiga's multi-tasking environment is that you can do that right now without leaving Digi-Paint 3. If you need to format a data disk, use the following procedure:

- Click on the left portion of the Front/Back gadget in the upper right corner of the File Requester.

This brings you to the Workbench.

- Put a blank disk in one of your disk drives.

The image of the disk appears on the Workbench, like this: **df1:BAD** (or **df0:BAD**, depending on which drive you used).

- Select the **BAD** disk.
- Pull down **Initialize** from the **Disk** menu.

A message appears asking you to insert the disk in the drive. Since it's already there:

- Click **Continue** (click **Cancel** to exit this procedure).

Another message appears, asking if you really want to do this.

- Click **Continue** (click **Cancel** to exit this procedure).

The Amiga now begins formatting your data disk. While it's busy with that, let's go back to Digi-Paint 3 and get ready to save the file.

- Click on the right portion of the **Front/Back** gadget in the upper right corner of the Workbench screen.

This brings you back to Digi-Paint 3.

- Click on the disk drive where you want to save this picture (**df0:**, **df1:**, or **dh0**). If you just formatted a data disk, wait until the disk drive has finished whirling, then click on that drive (or the volume name). The new disk is named **Empty**.
- Click in the long black window to the left of the **Save File** button (this is the **File Name** window).
- Type in **Sphere** (this will be the file name).
- Click the **Save File** button.

The picture is saved and the **Toolbox** reappears where you left it.

Tutorial 2: Range Painting

This tutorial shows the use of **Range** drawing mode to create more intricate three-dimensional objects; the subject is a cube.

If you just completed the **Sphere** tutorial, we're ready to start; go to the fourth step listed below.

If you have just started Digi-Paint 3:

- Load the **Sphere** file you created with the first tutorial.
- Click the second icon from the left in the lower left corner of the Toolbox to go to the Controls.
- Click the **Point Hotspot** button above the Hotspot Locator. This controls where the left hand Range Color is located in the object you draw.
- Drag the hotspot to the upper left corner of the gray area, about 1/4 inch from the top and from the left.
- Click the **Tools** icon (second icon from the left) in the lower left corner of the Toolbox.

The **Tools** section of the Toolbox is displayed.

- Select the **Rectangle** tool.
- Select the **Fill** gadget if it's not already highlighted.
- Pull down **Range** from the **Mode** menu.
- Drag out a square about two inches on a side to the left of the sphere in the upper portion of the Canvas.

Now we have the front face of the cube. For the other two faces that can be seen, we need to use the **Polygon/Straight Line** tool.

- Select the **Polygon/Straight Line** tool (second icon from left).
- Click the **Controls** icon to return to that section of the Toolbox.

First we'll add the top face of the cube. The highlight needs to be moved to better simulate the top face.

- Drag the hotspot in the Hotspot Locator straight downward to the bottom, about 1/4 inch from the left edge.

Draw a parallelogram using the **Polygon** Tool:

- Click on the top left corner of the square and drag out a line about half an inch long at a thirty degree angle, pointing upward to the right.
- Click with the left mouse button to place that endpoint, then drag out a straight line to the right about two inches long.
- Click the left mouse button to place that endpoint.

- Drag out a line from there to the upper right corner of the square, then click the right mouse button to create the filled polygon.

Now for the final part of the cube, we need to draw a darker area to simulate the shadowy side of the cube.

- Click the **Hotspot Off** button (the first button on the left over Hotspot Locator); the Hotspot Locator turns white, indicating that Hotspot and Edge colors are the same.
- Now draw a polygon for the last face of the cube, using a similar procedure to the one for the top face.

When you complete this polygon, it appears in red (the rightmost Range Color), since the Hotspot is the entire area. The cube might look more real with a slightly darker shade of red.

- Select the red color from the Range Color palette by clicking on the far right edge of the Range Colors (just to the left of the red box at the farthest right).
- Pull down **Normal** from the **Mode** menu. Move the pointer over the Current Color Bar at the top of the Toolbox, then press and hold the left mouse button.

The Palette is displayed as long as you hold down the mouse button. Directly under the Current Color Bar are the RGB sliders that control the color chosen. To the left are darker shades of the 16 Color Palette colors.

- While still holding the left mouse button, move the pointer to the red color in the 16 Color Palette, then move the pointer downward slowly. The red color in the Current Color Bar darkens as you move downward. Select a red a few shades darker than the beginning color, then release the mouse button.
- Now click on the **Repeat** button in the Toolbox.

The right face of the cube is redrawn in a darker shade of red, helping create the illusion of three dimensions. Save this picture under the file name **Sphere&Cube** for use in the next tutorial.

Tutorial 3: Shadows

This is a continuation of the Sphere tutorial. Here we will create a greater illusion of depth by adding a background and shadows to the sphere and cube created before.

- Load the **Sphere&Cube** file you created with the previous tutorial.
- Select the **Rectangle** Tool and the **Fill** gadget.

- Draw a white rectangle on the bottom half of the screen below the sphere and the cube.

This serves as a background; perhaps it's a giant desktop. In any case, it's a good place for these objects to cast shadows. For that, we'll use one of Digi-Paint 3's Drawing Modes.

- Pull down **Darken** from the **Mode** menu.
- Select the **Ellipse** tool and the **Fill** gadget.
- Draw a flattened ellipse to the right and below the sphere on the white surface.

The ellipse appears dark, as a good shadow should. Now for the cube's shadow.

- Select the **Polygon** Tool.
- Draw a parallelogram under the cube, slightly to the right, offset the same distance as the sphere's shadow.

You now have shadows, and the similar light sources generate a spotlight effect. Note that the **Darken** mode doesn't have to have a white background; you can use **Darken** with similar effects on any background, even ones with multiple colors.

Tutorial 4: Sizing

Digi-Paint 3 has the ability to resize any image by using the Warping controls and 3D Texture Mapping drawing mode. This tutorial demonstrates resizing of a small custom brush; the technique can be used with an entire picture.

- Load Digi-Paint 3 (if it's not already running).
- Load the image named **Fashion** from the **Images** drawer on the Digi-Paint 3 disk.
- Select the one-pixel brush.
- Select the **Rectangle** Tool and the **Fill** Gadget.
- Click the **Scissors** icon.

Now you can cut out a custom brush in the shape of a rectangle.

- Draw a square that encloses one of the woman's eyes.

- From the **Brush** menu, pull down **Copy This Brush** under the **Swap** sub-menu.

The **Copy This Brush** command appears on a sub-menu, so you need to move the pointer to the right once you hit **Swap** in order to display the sub-menu.

This procedure has now enabled the **TxMap** item on the **Mode** Menu. This mode requires that a custom brush is selected and a copy of that brush is made; so **TxMap** mode is not available until you have done those things.

- Select **TxMap** from the **Mode** menu.
- Select the **Rectangle** tool and make sure that the **Fill** gadget is activated.
- Draw any size rectangle on the screen and the brush will be reproduced in the size and shape of that rectangle.

To keep the proportions the same, draw a square. Try drawing a square about half an inch on a side, and then try drawing a square about four inches on a side.

The resizing looks even smoother if you use **Smoothing**.

- Click the **Controls** icon to go to that section of the Toolbox.
- Select the right half of the **Smoothing** icon (fourth from the left, middle row on the left side).
- Click **Repeat** to redraw the last eye with **Smoothing**.

As the eye is redrawn, you'll see the difference that **Smoothing** makes.

This resizing technique can be used with all manner of custom brushes. As an additional benefit, you can resize the brush with different proportions as necessary to fit the brush into your image.

For greater precision in resizing a brush, use the **Coordinates**. Turn on **Coordinates** by selecting it from the **Prefs** menu or clicking on the **Mode** box at the bottom right of the Toolbox. When you start to draw, the Toolbox (and the **Coordinates**) disappear; press the **Esc** key to bring back the Toolbox and the **Coordinates** as you draw. When you start drawing, the **Coordinates** take the starting point of your drawing as 0, 0 and add from there. The "Repeat" tutorial will show you how you can pick this up as a custom brush.

Tutorial 5: Repeat

This is one of the most powerful commands in Digi-Paint 3. This tutorial demonstrates the use of **Repeat** to automatically cut out custom brushes.

- Select the **Continuous Freehand** tool and the **Fill** gadget.

- Draw a random shape on the Canvas.
- Click the **Scissors** gadget.
- Click **Repeat**.

You have now cut out a custom brush of the shape you've just created. This works for any type of drawing tool, as long as it's the last thing you draw. This use of the Repeat command makes it very easy to cut out custom, or texture-mapped shapes as brushes.

The **Repeat** button can also be used to try out variations in Control settings, colors, or Drawing Modes. As long as you don't draw again in the Canvas, the **Repeat** key will continue to repeat the last drawing action including whatever changes you've made. Try selecting a different color, or changing the Transparency controls, choosing a new drawing mode, then click the **Repeat** button. Using **Undo** and **Repeat** makes the process of trying out alternative settings quick and easy.

Tutorial 6: RubThru

This tutorial demonstrates the use of **RubThru** drawing mode. This mode can be used to integrate two separate images in a selective fashion.

- Load the **Fashion** image from the **Images** drawer on the Digi-Paint 3 disk.
- Select **Copy This Picture** from the **Swap** sub-menu in the **Picture** menu.
- Select white from the 16 color palette, and **Colorize** from the **Mode** menu.
- Press the w key on the keyboard to colorize the entire screen at once. (Colorizing with any gray scale color [r=g=b] removes all of the color from the image)
- Click the **Controls** gadget to display the Transparency controls.
- Select the **Point Hotspot**, and move it so that the hotspot is directly over the white highlight on the red sphere in the Hotspot locator.
- Move the right hand (**Edge Transparency**) slider to the bottom of its range.
- Select **RubThru** from the mode menu and press w on the keyboard.

You will see the color of the original picture return to your "de-colored" black and white screen, according to the Transparency settings, from the original color picture in the Swap screen.

This technique can be used to create misty "cutouts" of photographs or as a selective **Undo**. **RubThru** can easily be used with a different picture in the **Swap Screen** to give may other interesting montage and blending effects.

Tutorial 7: Background

This tutorial shows how to create backgrounds, and particularly perspective backgrounds. This example specifically creates an ocean background. First we'll create the ocean.

- Select the left Range color (the color just right of the Current Color Bar) by clicking it: a white highlight appears around the color.
- Click on the bright blue color in the 16 Color Palette; this blue then becomes the left color of the Range Colors.
- Click on the rightmost Range Color to select it.
- Move the pointer over the Current Color Bar and hold down the left mouse button; the Palette appears below.
- While still holding down the mouse button, move the pointer over the three Color Selectors (on the right side of the Palette) until a very light blue color appears in the Current Color Bar; then release the mouse button to select that light blue color as the right Range Color.
- Click the right Range Color again to de-select it.
- Pull down **Range** mode from the **Mode** Menu.
- Go to the **Controls** section of the Toolbox.
- Set the Transparency controls to **Horizontal Hotspot**, and place the Hotspot at the top of the Hotspot Locator.
- Go to the **Tools** section of the Toolbox and select the **Rectangle** tool, the **Fill** gadget, and the one-pixel brush.
- Draw a rectangle filling up the bottom two-thirds of the screen.
- Now select a Range for the sky colors, using a light gray for the left color and a dark gray for the right color.
- Draw a rectangle on the top part of the screen, just meeting the top of the rectangle you just drew.

You now have a blank seascape, ready to add details. Similar range painting techniques can be used for landscapes. This works best using the **Random Dithering** pattern; you can try using the **Pattern Dithering** by clicking the left half of the icon in the **Controls** section, or try it with no dithering at all by de-selecting **Dithering**.

Add seabirds to the painting by using a similar Range as you used for the sky. Just change the left color to white, and select the **Filled Continuous Freehand**

tool. Select the Circle brush in the smallest brush size. Draw a tiny double arc, like the curved wings of a seagull, and from a distance your friends will think you can draw.

Add a low-lying sun by substituting yellow for the right Range Color and drawing a small filled circle just above the horizon line. For a final touch, add the reflection of the sun in the water by adjusting the Transparency controls with the right slider to minimum, the left to just below halfway, the hotspot on vertical in the center. Use the **Filled Continuous Freehand** tool to draw a wavy reflection in the water, and you have a completed seascape.

Tutorial 8: Colorizing

This tutorial shows how Digi-Paint 3 can be used to colorize a black and white picture.

- Load the picture titled **Lady** from the **Images** drawer on the Digi-Paint 3 disk.

This picture was digitized with the Digi-View video digitizer in black & white. Now we'll use Digi-Paint 3 to provide some lifelike colors for the picture.

- Select the one-pixel brush.
- Pull down **Colorize** from the **Mode** menu.

Now we're ready to start colorizing. We'll begin with the skin tones.

- Go to the **Palette** section by clicking the **Palette** icon.
- Choose a pink flesh color by moving the pointer over the Color Selectors and holding down the left mouse button. The Current Color Bar changes to show the various colors the pointer is traveling over.
- Go to the **Tools** and select the **Filled Continuous Freehand** tool.
- Go to the Canvas and carefully trace the outline of her face by holding down the left mouse button. Be sure you complete the outline so the color fills in properly. When you've completed the outline, release the mouse button and you'll see the flesh tone added to her skin. If you didn't outline the face properly, click **Undo** and try again.

Once you have the face filled in properly, look at the color. If the skin tone doesn't look right, go back to the Palette and change the skin tone to a better shade, then click **Undo** and then **Repeat** to put the new shade on the Lady's face.

Now to add color to the lips.

- Go to the **Palette Controls** and select a shade of red that you like. Now trace the outline of the lips and watch the color fill in.

If you don't like that shade of lipstick, click **Undo**, choose another color, then click **Repeat**.

- For the most realistic addition of color to the lips, go to the **Transparency controls**.
- Set the right-hand slider about one-quarter of the way up.
- Choose the **Horizontal Hotspot** and put the hotspot in the middle.

Now when you add the color to the lips (click **Undo** and then **Repeat** again, if you've already added a color to the lips) it is blended with the face color at the edges, adding an illusion of depth.

To add eye color, select a light blue color and draw an outline around the retina of each eye. For added effect, use the **Transparency controls** with the left-hand slider set to minimum, the right on maximum, and the **Point Hotspot** set at a point corresponding to the reflection on the retina. This will keep the color off of the reflection, adding to the contrast.

Make the whites of her eyes stand out by carefully **Colorizing** them with white.

Add eye shadow by using the **Transparency controls** to blend the edges of it (try the **Horizontal hotspot** again, with the left slider about one-quarter of the way up and the right slider at minimum). You can see where the model was wearing eye shadow; trace that area carefully. For the final touch, use a yellow to add gold color to the earrings.

Tutorial 9: Montage

This tutorial shows you some of the techniques used in combining elements from different digitized pictures. In this example, we'll combine various parts of the **Fashion** and **Lady** images.

- Load the picture called **Lady** from the Digi-Paint disk (use the **Palette** from the file). and copy it to the swap screen using **Copy this Picture** from the **Swap** sub-menu of the **Picture** menu.
- Load in **Fashion** (do not use the **Palette from File** option) and press **j** on the keyboard to swap screens.
- Select the **Freehand Continuous** tool, the one-pixel brush, and the **Scissors**.
- Carefully cut out the lips from the **Lady** picture so they become your custom brush and press **j** to return to the **Fashion** picture.

- Paste down the lips in the middle of the scarf where you think her mouth should be.
- Select **RubThru** from the mode menu and the largest circular brush.
- Make random brush strokes on the **Fashion** picture to bring forward other parts of the **Lady** picture in an artistic way.

To combine elements from more than these two images, simply cut out parts of other pictures or brushes or load in new images using the swap screen.

Tutorial 10: Perspective

This tutorial demonstrates how to use Digi-Paint 3's Warping Controls to simulate a three-dimensional perspective.

- Load the **Fashion** image from the Digi-Paint 3 disk.
- Select the one-pixel brush, the **Rectangle** Tool, and the **Fill** gadget.
- Click the **Scissors** gadget, then draw a square enclosing the model's eyes and part of her face; this picks up a custom brush of that area.

Now we need a clear Canvas.

- Choose black from the 16 Color Palette and pull down **Clear** from the **Picture** menu. Choose white from the 16 Color Palette so that the cursor is more easily seen. (This procedure can also be done by pressing **Shift-k**.)
- Pull down **Copy This Brush** under the **Swap** sub-menu in the **Brush** menu.
- Pull down **TxMap** from **Mode** menu.
- Go to the **Controls** section of the Toolbox. Note that the Warping Controls are now active.
- You can use the default warp settings horizontal (|) and zero warping (the straight line at the bottom of the slider range)
- Select the **Polygon** tool and turn on the **Fill** gadget.
- Draw a trapezoid, with the top line being about half of the length of the bottom line, and the sides at about a 45 degree angle. The picture is filled in when you complete this shape, giving a perspective impression.

For smoother results, turn on the **Smoothing** gadget to the left of the Warping Controls.

Sphere

To create a sphere effect, use the **Filled Circle** tool to draw a circle. Use the **Point Hotspot** in the Warping Controls set at the center. For a greater impression of a sphere, use the Transparency controls to increase the transparency of the edge of the circle. Or use *Darken* mode with Transparency set to none (the top of the slider) at the Hotspot, one-third Edge; this will darken the edges of the sphere if you **Repeat** the drawing.

Cylinder

To create a cylinder effect, use the **Filled Rectangle** Tool to draw a tall thin rectangle. Use the **Vertical Hotspot** in the Warping Controls set at the center, and set the warp amount slider about half-way up (to the slightly curved line next to the warp slider range).

Tutorial 11: Titles

This tutorial demonstrates how to use text and the special features of Digi-Paint 3 to create titles.

- Go to the Text Rendering section by clicking the **Text** icon.
- Choose a font by clicking the **Fonts** icon; the Font Requester appears.
- Click **Cinnamon** to open that drawer, and then click **41** to select that size.
- Click **Open Font** to bring that font into Digi-Paint 3 and return to the Text Rendering section.
- Click the **bold A** icon to the left to select bold text.
- Click in the **Text Entry Window** in the upper left area of the Toolbox and type **Text**.
- Click the **Text to Brush** icon to the immediate left of the **Text Entry Window**, or press **Return** to turn the text into a brush.

In a moment, the text you typed becomes a custom brush. Stamp it down anywhere in the Canvas.

To add some interest to the title, use **Range** paint mode.

- Select **Range** from the **Mode** menu.
- Click the **Text to Brush** icon again, and the text reappears as a custom brush using the Range Colors.

You can alter the Transparency controls to get transparent titles. In order to get the title with the new control settings active, you must click Text to Brush.

To create warped effects, take any text brush and pull down **Copy This Brush** from the **Swap** sub-menu in the **Brush** menu. Then pull down **TxMap** mode. Now you can draw a parallelogram to create italic text, use the **Circle** tool to create spherical text effects, and of course resize the text to any shape you draw.

NOTES

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Chapter 5

Using Transparency

5

NOTES

5

Chapter 5: Using Transparency

Digi-Paint 3's Transparency is one of the most powerful and widely useful features ever offered in a paint program. Transparency works with all other program features in exactly the amount and location you specify: it is always available to you if you care to use it.

Controls

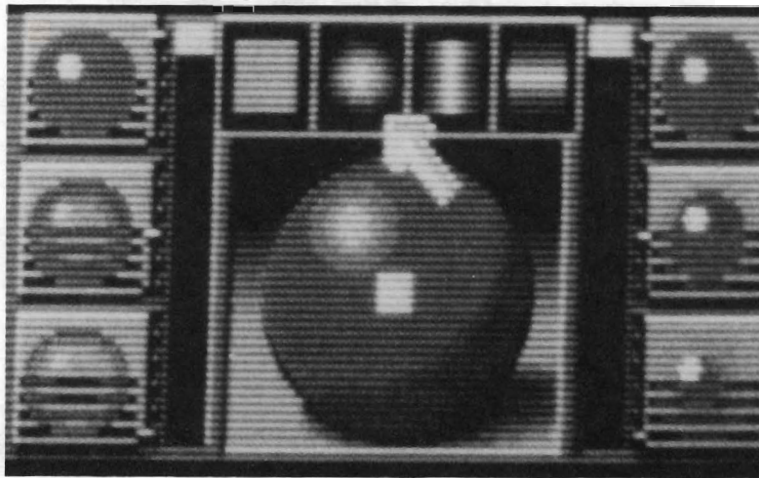


Figure 5.01
Transparency
Controls

The Transparency controls are located in the Controls section of Digi-Paint 3's user interface and consist of a graphic representation of the drawn shape or pasted brush (a shaded red sphere) with adjustments available for the transparency of the edge of object, transparency of the center or "Hotspot", and adjustments for the shape and kind of Hotspot.

Hotspot Transparency

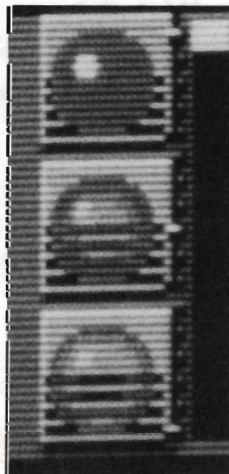
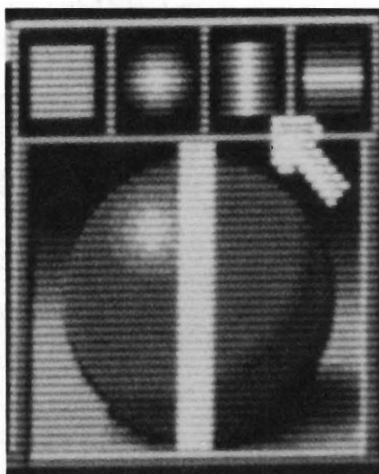


Figure 5.02
Hotspot
Transparency
Controls

The left-hand vertical slider and the three icons to its left control the Hotspot or center transparency. At the bottom of the slider the Hotspot is entirely transpar-

ent, and at the top of the slider the Hotspot is entirely solid. The three icons to the left of the slider are preset positions at the bottom (100% transparent), middle (50% transparent), and top (0% transparent or opaque) of the slider. Click any one of these icons to move the slider to that position.

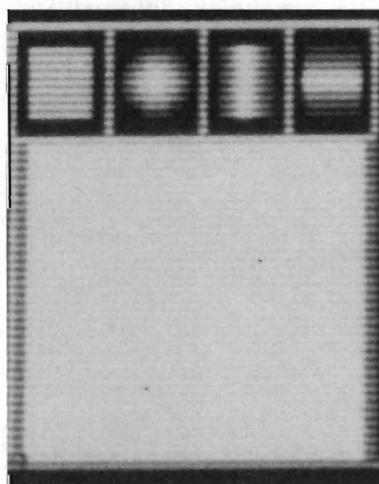
Hotspot Locator



*Figure 5.03
Hotspot Locator*

In the middle of the Transparency controls is the Hotspot Locator, with four buttons above it; from left to right, those buttons are the Off button, the Point Hotspot, the Horizontal Hotspot, and the Vertical Hotspot. These buttons and the locator determine the location and kind of hotspot present in your drawn shape or pasted brush or text.

No Hotspot

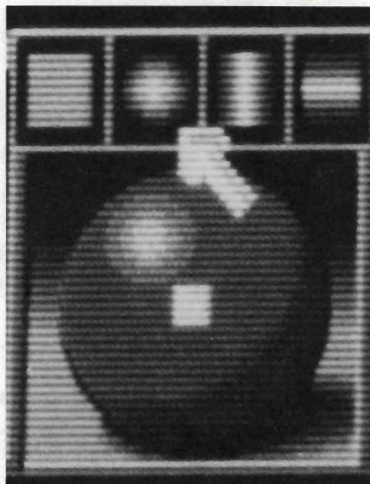


*Figure 5.04
Hotspot turned off*

When the Off button is selected (the default setting), a large white block fills the Hotspot Locator. In this setting, the Edge Transparency and the Hotspot Transparency sliders are linked; moving one slider moves the other. This setting is particularly useful for “tinting” effects and layering transparent colors. Usually, if you are using a solid color with this setting, it’s best to turn off the Dithering

controls, especially for tinting purposes. When using Range mode and the Hotspot is off, the left-hand color for the Range is used instead of the Current Color (note that if Dithering is on, dots of other colors are painted in the area you draw).

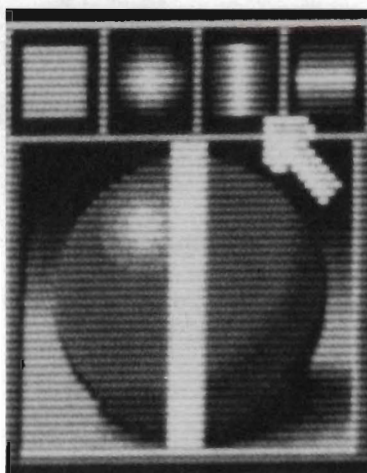
Point Hotspot



*Figure 5.05
Point Hotspot*

The Point Hotspot button displays a small white square in the center of the Hotspot Locator. Click the Point Hotspot button again to turn off the Hotspot Locator. When the Point Hotspot is active, drag it anywhere in the Locator. This sets the position of the Hotspot, whose transparency is controlled by the Hotspot Transparency Slider. When using Range mode, the Hotspot controls the location of the left-hand color in the Range Colors.

Horizontal Hotspot



*Figure 5.06
Horizontal
Hotspot*

The Horizontal Hotspot button displays a vertical white bar in the center of the Hotspot Locator. Click the Horizontal Hotspot button again to turn off the Hotspot Locator. When the Horizontal Hotspot is active, drag it anywhere in the Locator. This sets the position of the Hotspot, whose transparency is controlled by

the Hotspot Transparency Slider. When using Range mode, the Hotspot controls the location of the left-hand color in the Range Colors.

Vertical Hotspot

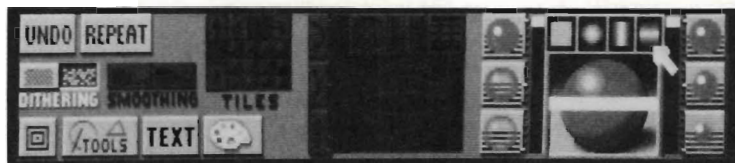
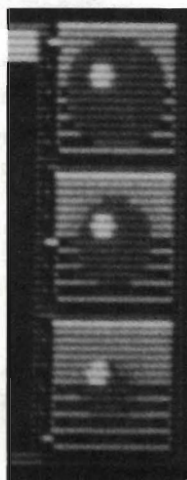


Figure 5.07: Vertical Hotspot

The Vertical Hotspot button displays a horizontal white bar in the Hotspot Locator. Click the Vertical Hotspot button again to turn off the Hotspot Locator. When the Vertical Hotspot is active, drag it anywhere in the Locator. This sets the position of the Hotspot, whose transparency is controlled by the Hotspot Transparency Slider. When using Range mode, the Hotspot controls the location of the left-hand color in the Range Colors.

Edge Transparency



*Figure 5.08
Edge
Transparency*

The right-hand slider and the three icons to its right control the Edge Transparency. At the bottom of the slider the edge of any shape you draw (or custom brush you paste down) is entirely transparent, and at the top of the slider the edge is entirely solid. The three icons to the right of the slider are preset positions at the bottom, middle, and top of the slider. Click any one of these icons to move the slider to that position.

The Gallery

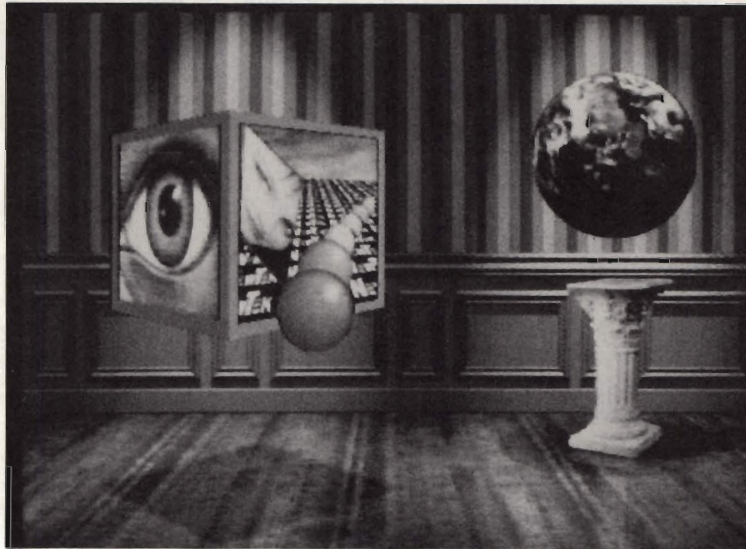


Figure 5.09
The Gallery

The picture “The Gallery” shows some of the many ways that Digi-Paint 3’s transparency controls can be used for different, subtle shading and lighting effects.

Transparency and the Modes

Transparency can subtly or to a large degree alter any of Digi-Paint 3’s 11 modes to create nearly limitless new ones.

When you’re using the Transparency controls to adjust the degree of a mode, the usual setting is to turn off the Dithering controls (no Dithering active) and to leave the Hotspot equal to the Edge, so that the Transparency affects the whole area equally.

You can, however, create interesting and subtle effects by changing those standard settings. Dithering with a pattern works well on geometrical figures, while random dithering produces good effects with digitized images. Dithering of either sort results in more apparent colors, which gets closer to the mathematical ideal of the operation being performed. In other words, it looks better in many cases.

Effects

There are far too many possible effects achievable through the clever use of Transparency for us to list here; the following is just a sample of some of the ways that Transparency can give you an artistic edge. If you spend a little time experimenting with these suggestions and their variations, you will discover a full set of your own favorite settings.

1. Clouds and Mist—Making realistic clouds or mist is easy when you use Range mode with Transparency. Set up a range of white to light gray for sunny days or darker grays for a more overcast setting. The proper setting of the hotspot and transparency levels add the right degree of translucency to mist or fog.
2. Perspective Effects—Transparency and the other modes can help simulate different kinds of perspective:
 - Using Blur with the transparency set to around 90% and painting over objects in the background of your picture will give the effect of great distance; the objects will blur slightly as if seen through a hazy atmosphere.
 - Colorizing background objects with blue and approximately 75–90% transparency will also give them the look of being at a great distance but without actually blurring them; objects seen at a great distance through a clear atmosphere take on a blue tinge but remain sharp in detail.
3. Translucency—objects can be made translucent with the correct application of transparency. Using a semi-transparent light gray to draw an object is an excellent simulation of glass. A Range mode set up of white at the hotspot to gray at the edge with the correct placement of the hotspot in the locator can make a glass object with light-source reflections.
4. Improved Montage - using Edge Transparency when pasting down custom brushes helps to more effectively blend them into the picture. Try using various amounts of edge Transparency in the Montage tutorial when pasting down the lips. You'll notice that the transition is much smoother; another benefit is that you don't need to be as precise when cutting out the custom brush, because varying the Edge Transparency will blend out any unwanted details.
5. False Color—Using Transparency with Digi-Paint 3's logical modes (And, Or, and Xor) can yield some very interesting computerized false color effects; make Xor'ed halos of false color by setting Hotspot Transparency at 100% and Edge Transparency at 0% and drawing over the desired area.

Because there are so many different combinations and possible modes, there are usually subtle differences between seemingly identical modes, such as painting in **Normal** mode with 50% transparent white and painting using **Lighten** mode. To prove this to yourself, set the Transparency Controls to 50% with the Hotspot off. Select the color white from the 16 color palette. Using **Normal** mode, draw a filled rectangle over any portion of the **Fashion** image from the Art Disk. Then choose **Lighten** from the Mode menu and click on **Undo** and then **Repeat**. You will notice a definite difference between the two modes that at first glance seem identical.

Interactive Transparency

The Transparency Controls are also interactive; that is, you can manipulate them while an object is being drawn to create unusual effects. If the Toolbox vanishes while drawing the object, click the right mouse button to halt the process, then click **Undo** and **Repeat**. While the process is being repeated, move the Hotspot Locator or change the Transparency sliders. This works better on a large object, because with a small object there isn't much time.

Chapter 6

Warping and Texture Mapping

NOTES

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Chapter 6: Warping and Texture Mapping

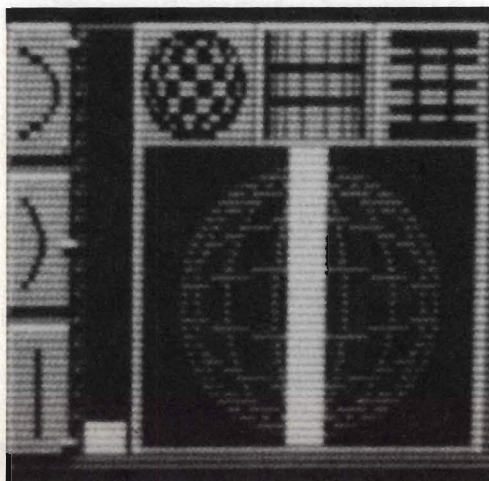
Texture mapping in Digi-Paint 3 (TxMap from the mode menu) offers tremendous power to warp images, resize them, and create three dimensional effects. The controls provide a graphic representation of the warped brush (a wire-frame sphere) and controls for the amount, type and location of the warping.

The controls are set up in a fashion that allows for maximum flexibility; Digi-Paint 3's TxMap mode can re-map or warp any shape into any other. Add to this the fact that TxMap works very well with Transparency and the other modes, and you have a brush manipulation system that gives you control of every aspect of the final result.

Warp Enable

These controls are only operative when TxMap Mode is active. To begin, you must first load in, or make a custom brush using the Scissors and make a copy of it (using the **Copy This Brush** command under the **Swap** sub-menu in the **Brush-menu**). Then pull down **TxMap** from the **Mode Menu**.

Controls



*Figure 6.01
Warp Controls*

Warp Amount



*Figure 6.02
Warp Amount
Slider*

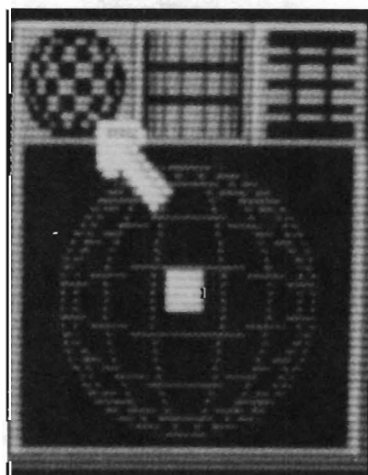
The Warping Slider to the left of the Warping Controls determines the amount of warping in the resulting image, from none to severe; the most severe warping is at the top of the slider. The three icons to the left of the slider are preset positions at the bottom, middle, and top of the slider. Click any one of these icons to move the slider to that position.

Texture mapping with the Warp Amount set to 0 can be thought of as unlimited brush re-sizing and re-proportioning, depending on whether the brush retains its previous shape (although larger or smaller) or not.

Warp Locator

To the right of the Warp Amount slider is the Warp Locator, with three buttons above it; from left to right, those buttons are Point Warping, Horizontal Warping, and Vertical Warping. These buttons and the locator determine the location and kind of Warping present in your drawn shape or pasted brush or text.

Point Warping

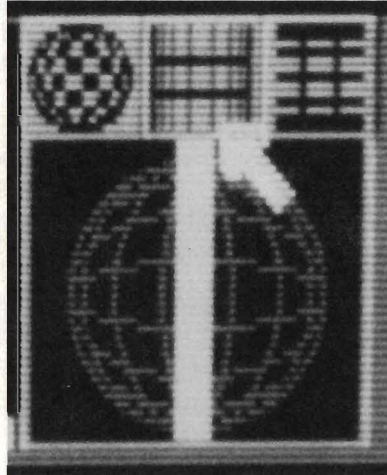


*Figure 6.03
Point Warping*

The Point Warping button displays a small white square in the center of the Warp Locator. When Point Warping is active, drag it anywhere in the Locator.

Point Warping means that both the horizontal and vertical lines in the brush are warped equally according to the setting of the Warp Amount Slider.

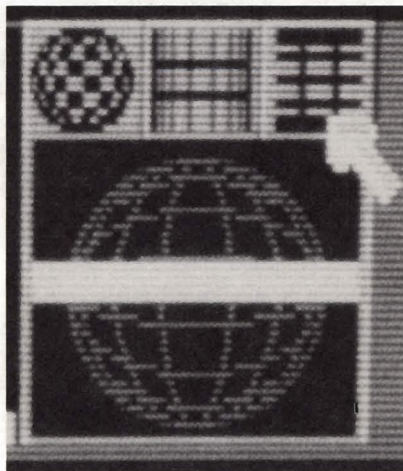
Horizontal Warping



*Figure 6.04
Horizontal
Warping*

The Horizontal Warping button displays a vertical white bar in the center of the Warp Locator. Click the Horizontal Warping button again to turn on Point Warping. When the Horizontal Warping is active, it can be dragged anywhere in the Locator. Horizontal Warping means that all of the horizontal lines of the brush are warped to the degree specified by the warp Amount Slider, around the vertical axis specified within the Warp Locator.

Vertical Warping



*Figure 6.05
Vertical Warping*

The Vertical Warping button displays a horizontal white bar in the Warp Locator. Click the Vertical Hotspot button again to turn on Point Warping. When Vertical Warping is active, it can be dragged anywhere in the Locator. Vertical Warping means that all of the vertical lines of the brush are warped to the degree specified by the warp Amount Slider, around the horizontal axis specified within the Warp Locator.

The Gallery

The picture “The Gallery” on the Transfer 24 disk shows just a few of the ways that TxMap mode can be used:

- **Texture-Mapped Wood Floor**—The floor of the room is nothing more than a Digi-View Gold picture (it is the digitized base of the copy stand). The picture was loaded as a custom brush and put down in perspective.
- **The Perspective Pictures in the Cube**—These pictures were also loaded as custom brushes and warped onto the opposing faces of the cube
- **The Rainbow Balls**—These balls seem to be leaving the famous “NewTeks” picture because they were cut out and re-sized to appear larger than they actually are.

The Shape Tools

Any Shape Tool can be used with TxMap, whether filled or unfilled. The warp amount and location chosen for texture mapping are very important in creating the best warping effects.

- **Freehand Continuous**—Can be used for unusual shapes and to simulate more complex objects. Once you’ve placed an image, use other drawing modes (such as Darken) or the Transparency controls to blend the image into the rest of the picture.
- **Polygon**—This is usually the best tool to use for perspective effects. The trapezoid shape with warping set to 0 is the most common polygon for generating the most realistic 3D effects.
- **Rectangle**—This is the most commonly used shape for straight brush re-sizing (with Warp Amount set to 0). The proportions of the original brush can be altered to a great degree without affecting the quality of the re-mapped brush.
- **Circle and Ellipse** - Useful for creating spherical effects. The best settings for the warping controls are generally slight (10–25%) Warp Amount with Point Warping set in the center.

Smoothing

When Smoothing is activated (this is only possible when you are in TxMap mode), it allows you to anti-alias the custom texture-mapped brush and eliminate the jaggies that would otherwise occur. Because re-draw of the custom brush takes a little longer with Smoothing activated, it is best to leave it off until you have finished experimenting with the warp control settings and are sure that you have the final result. Smoothing affects all texture-mapping and tiling operations.

Tiling

The Tiling controls allow you to texture-map multiple copies of the custom brush. You can select a format of from 1 to 9 copies either horizontally or vertically by clicking on the arrows on the top and left borders of the Tiling controls. Tiling also works with smoothing and is only available when you are using TxMap mode.

Suggestions

Here are a few suggestions that may lead you to develop some of your own Texture-Mapping techniques.

- More severe warping effects can be obtained by pasting down an image using TxMap mode and warping at maximum, then click **Scissors** and **Repeat**. The image you just created is turned into a custom brush. Now choose **Copy This Brush** from the **Swap** sub-menu in the **Brush** menu. Select a shape tool and draw a new shape on the screen. The previously warped image is warped even further into the new shape, since the Warping control is still set to maximum.
- Try texture mapping text brushes into free-hand shapes. This is a good way to get some extremely unusual custom fonts.

Interactive Texture Mapping

The Warping Controls can work interactively (in real time) for unusual effects. Activate **TxMap** mode (remember, you must first cut out a custom brush and then copy it), then draw a new shape on the screen. The custom brush is texture mapped into that area with the Warping Control settings applied. Now click **Undo**, and then **Repeat**. Grab the Warping Point in the Warping Locator or the Warp Amount Slider and move it around while the image is being drawn. The warping effect moves around in the image as it is being drawn. Of course, this works best if the image being drawn is large, so that you have enough time to make these changes (turn on Smoothing to give you more time). Try using the Vertical Warping bar and moving it up and down to create a wavy, rippling effect.

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Chapter 7

Tips and Hints

NOTES

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Chapter 7: Tips and Hints

X-Specs 3D compatibility

Digi-Paint 3 is compatible with the X-Specs 3D manufactured by Haitex, Inc. Digi-Paint 3 can be used to draw in three dimensions while using X-Specs.

You must be in interlace mode for 3D drawing to work. The X-Specs create 3-D by using alternate lines in the interlace mode for display to the left eye and the right eye; the display is synchronized with very fast LCD shutters in the eyeglasses.

The left eye sees the even lines, the right eye sees the odd lines. Press * to turn on the X-Specs (press e to turn them off). Press the left parentheses key (**Shift-9**) to draw for the left eye; press the right parentheses key (**Shift-0**) to draw for the right eye. Create 3D effects by first pressing "shift-9" and pasting down a brush. Then move it to one side about 5 to 10 pixels away, press "shift-0" and paste it down for the other eye. Varying the amount of separation between the two views creates a greater or lesser impression of depth. Some experimentation will show you how to get the best use out of this feature.

Working with Digi-View Gold

First of all, Digi-Paint 3 is the perfect companion to NewTek's Digi-View Gold video digitizer. (If you don't already own Digi-View Gold, it's a combination of hardware and software for your Amiga that allows you to "digitize" objects or pictures using a video camera, thus bringing the images into your Amiga.) Digi-Paint 3 reads in any Digi-View picture, and can be used to touch up, edit or combine such pictures. The RubThru mode is particularly useful to merge two Digi-View pictures using the Transparency controls. Combine a digitized picture of yourself or your friends with digitized pictures of the rich and famous. See what you'd look like with different hair color or even a different hair style. Or, for more commercial applications, you can digitize products and alter their appearance to help make design decisions. Digi-Paint 3 now gives you the capability to edit the lifelike images you get from Digi-View, which lets you get more out of your Digi-View.

Resolution modes

Digi-Paint 3 can load files of any resolution mode created by Digi-View. Hi-res images (640 x 200 or 640 x 400) are re-rendered into HAM mode using a sophisticated algorithm that creates an amazingly crisp picture. This conversion process uses the Dithering currently selected; you may get better results with some pictures by using pattern Dithering or no Dithering at all.

Raw files

Digi-Paint 3 cannot directly utilize Digi-View's raw RGB files. You must first use the Transfer 24 software to load in the RGB file and save it in any standard Amiga IFF resolution. You can also take the opportunity to manipulate the file with the image processing tools available in the program.

Normal Picture to Overscan

The resizing technique covered in tutorial #4 can be used to convert a standard size picture to overscan size. Set the Screen size to one of the overscan settings (say 384×240). Then load in a 320×200 picture. Select the entire picture as a brush, and save it using **Copy This Brush**. Then use **TxMap** mode with **Smoothing** on and draw out a new rectangle to the limits of the 384×240 Canvas. Select the **View** command from the Picture menu to see the results.

Curing Flicker

Interlace pictures can sometimes suffer from flickering. Use **TxMap** mode to remove flicker. Select the picture as a brush, select **Copy This Brush** from the **Brush Swap** menu, select **TxMap** mode and turn on **Smoothing**. Then select the **Filled Rectangle** drawing mode and single pixel brush. Drag out the rectangle making it either slightly larger or smaller than the original. The flicker in the repainted image will be greatly reduced or gone.

Advanced Perspective

The directions in the Perspective Tutorial give you a quick way to get perspective effects. For even better results, pick up the image you get at the end of the tutorial as a custom brush, use **Copy This Brush**, then use the **Horizontal Warping** with **Warp Amount** at medium and stamp it down again. Then **Repeat** using **Darken** mode with Transparency horizontally at the front to darken the rear edge of the brush and not the front edge.

Perspective Fill Screen

Use the **Tiling Controls** set to **9 by 9**, use **TxMap** to draw a rectangle covering the bottom two-thirds of the screen, with **Warp Amount** set to high, and the **Horizontal Warping** at the bottom of the Warping Locator. This gives you the effect of the brush receding off into the distance.

Making Non-interlaced Pictures Interlaced

Load a non-interlace picture (for example, let's say 320×200). After the picture is loaded go to the **Size requester** (from the Picture menu) and click the **Interlace** button, then **OK**. The screen is redisplayed as interlace with the picture in the upper half of the screen. Select the whole picture as a custom brush and copy the brush. Select **TxMap** mode and draw out a new rectangle that covers the whole screen. For even better results, turn on the **Smoothing** control.

Large Tiles

To get more than 9 copies of a brush in a Tile, use Tiling again on the brush. For example, if you want 12 copies of a brush vertically and horizontally, cut out the custom brush, copy it, then activate **TxMap** and set the **Tiling Controls** to **6 by 6**. Then stamp down the brush, click Scissors and click Repeat, then copy this new brush and select **2 by 2** Tiling, then stamp down the new brush.

Multiple Color Ranges

To create color gradations with more than two main colors (and their intermediate shades), use Range Colors in **Range** mode to draw part of what you want. Then set a new Range Color. For instance, if you want a range from red to yellow to blue in a rectangle, set a red to yellow range, draw half the rectangle, then set a yellow to blue range and draw the other half of the rectangle.

Reverse Range Text

This effect uses Range Colors to bring out text against a background of the same range. Select **Range** mode, then choose the **Horizontal Hotspot** and drag it to the bottom of the Hotspot Locator in the Controls section of the Toolbox. Go to the Text section and type in the title you want (a large display font works the best; at least 24 point). When the text appears, select **Copy This Brush** from the **Swap** sub-menu in the **Brush** menu. Go to the Controls and move the **Horizontal Hotspot** to the top of the Hotspot Locator. Now go to the Tools and select the **Filled Rectangle** tool and draw a rectangle about the size of the text you created (it can be larger or smaller, if you prefer). Now select **TxMap** mode from the mode menu and click **Repeat**. If you like, turn on the **Smoothing** in the Controls menu before doing this. You now have text against a background where the same color range goes in opposite directions.

Miscellaneous Tips

If you're not getting what you expect when you draw, check to see what Drawing Mode you're in, or see if you've left the Transparency controls on. Press the **Tab** key to return Digi-Paint 3 to its default settings.

The right mouse button cancels any operation in progress. Since Digi-Paint 3 draws things from the top down, this feature can be used to draw only the top half of a brush or a shape.

Remember, with **Merge Picture**, the whole back picture is the paint that can act on the front picture with any of the Mode menu features. Try bringing a picture into the front using Transparency controls for a "soft-focus" effect.

The effects of **Blur** mode can be adjusted using the Transparency controls and the **Dithering** controls.

When not in use with **Range** mode, the Range colors can be set up to hold a spread of colors that you'll be using often

Files can be opened by double-clicking on the file name and aborted by clicking and holding the left mouse button.

Using the keyboard shortcuts saves time. When you find yourself reaching for the same icon or menu item for the hundredth time, look in **Appendix A** for a keyboard shortcut. Painting with two hands is faster than painting with one hand.

Freehand drawing works rapidly, but if you release the mouse button and draw again before the "Zz" cursor disappears, Digi-Paint 3 considers that as part of the original brush stroke. A single **Undo** will remove all such paint from the screen. This can be used to sign your name on the screen with **Freehand** drawing, and then clear your name off the screen by clicking **Undo**.

When you hold down the right mouse button to display the menus, the program's copyright information is displayed at the bottom of the screen. More importantly, the current picture size and custom brush size are also shown.

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Chapter 8

Reference

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Chapter 8: Reference

The Reference section covers all of Digi-Paint 3's features in detail. First, all of the Tools in the Toolbox are described, then all of the gadgets, controls, and icons on the various screens. Finally, the Menus are presented in detail.

The Reference Section is not designed to be read straight through. While all of the information in here is useful, much of it may be known to you already by virtue of experimentation or by working through the Tutorials presented earlier. Skip through the parts that you're already familiar with. Browse through interesting commands. Look in this section when you want to know how to do something in Digi-Paint 3, but you aren't quite sure how the feature works. In short, refer to this section for answers to the questions you encounter when using the program.

Special Functions of the Mouse Buttons

Besides the normal functions of pointing and clicking and menu selection, the right and left mouse buttons have some special functions in Digi-Paint 3:

Left Mouse Button

- Clicking in either the current color bar or the range bar (between the left and right range colors) gives you the Pick Color pointer. As long as you hold down the left button, you will be able to select any color from the canvas and make it your current color.

Right Mouse Button

- Clicking the right mouse button at any time there is a wait pointer (the cloud of Z's) on the screen, will cancel the operation in progress. This includes the repainting of brush strokes and file loads and directories.
- Clicking the right mouse button after selecting magnify, but before locking down the view, will close the magnify window.
- Clicking the right mouse button in a file requester will close it and return you to the toolbox and menu screen.
- Terminating a paint stroke by clicking the right mouse button will instruct Digi-Paint 3 to ignore repaint. This is useful if you want to make non-connected brush strokes with different colors, and use them as a custom brush. For example: choose red from the palette and draw a letter "h". Instead of releasing the left mouse button, click the right mouse button. Then choose blue and draw the letter "i" (dot the "i" using yellow after drawing the stem of the letter in the same manner as you drew the "h") then click **Scissors** and **Repeat** to pick up the entire word.

Toolbox

The Toolbox is at the bottom of the screen, below the Canvas. The Toolbox contains the Tools, Gadgets, and Menus that give you all of Digi-Paint 3's controls.

The Toolbox consists of two sections: the Color Strip and the four Command sections. The four Command sections which appear by clicking on the appropriate gadgets; these sections are Tools, Palette, Text Rendering, and Controls.

When you first load Digi-Paint 3, the Tools section is present and the other three sections are hidden.

The Color Strip

Figure 8.01
Color Strip



The Color Strip is at the top of the Toolbox no matter what Command Section is underneath. The left portion of the Color Strip shows the 16 colors of the current palette in 16 small boxes. These 16 colors can be used anywhere in the Canvas without using HAM modifiers (see Appendix B). Directly to the right of the 16 colors is the Current Color Bar, showing the color currently selected for use. Finally, at the far right of the Color Strip, the Range Colors are shown.

16 Color Palette

Figure 8.02
16 Color Palette



This is located at the left of the Color Strip. These 16 colors can be used anywhere in the Canvas without using HAM modifiers. Select one of the 16 colors as the current color by clicking on the desired color; the Current Color Bar changes to indicate the color you select. To change one of the 16 colors use the **Copy-Color** command from the **Palette** menu (see Palette menu). Any of the Amiga's 4096 colors can be used in the 16 Color Palette. When you save a picture, the particular 16 Color Palette you have chosen is saved with the picture.

Current Color Bar

Figure 8.03
Current Color Bar



This bar, in the middle of the Color Strip, shows the current color selected for use with the Tools. This color can be any one of the 4096 available. When you select a new color (by clicking on one of the 16 colors, or by using the Pick Color function) the Current Color Bar changes to the new color selected. By pressing and holding the left mouse button when the pointer is on the Current Color Bar, the Palette appears temporarily and the Pick Color function activates. While you continue to hold the left mouse button, moving the pointer over any color on the screen (in the Canvas or in the Palette) selects that color.

Range Colors

Figure 8.04
Range Colors



This section of the Color Strip sets the range of colors used for the Range drawing mode. The left-hand color is the Hotspot (see Transparency controls) of the Range effect and the right-hand color is the edge of the Range effect. Shown between these two colors is the range of colors used by Digi-Paint 3 for the Range Mode drawing.

To set the colors used in the range, click on either Range Color; a white highlight surrounds it. Then click on one of the 16 colors in the 16 Color Palette, or click and hold on the Current Color Bar and drag the pointer to any color on the screen. When you release the mouse button, the new color replaces the selected Range Color. Be sure to de-select the Range Color by clicking it again so that every new color you select doesn't change the Range Color.

The Range Colors are not used unless Range Mode is selected from the Mode menu. When Range Mode is in use, the Current Color is ignored and the Range Colors are used. The Transparency controls can be used to change the balance and distribution of the Range Colors in the drawing. (see Transparency controls for an explanation of how to control the Hotspot.) The Dithering (located on the Controls screen) also affects the Range Colors; the default setting is random Dithering.

The Tools (Keyboard Equivalent: F1—Tools/Controls Toggle)



Figure 8.05
The Tools

This section of the Controls contains the basic tools for applying paint to the Digi-Paint 3 canvas. The top row in this section holds the various Shape Tools and the Brush Shapes. The Shape Tools consist of the Freehand, the Freehand Continuous, the Polygon/Straight Line, the Rectangle, the Circle, and the Ellipse tools. The Fill Gadget, to the right of the Ellipse, causes the shapes drawn with the Shape Tools to be filled with the current color (or uses any of the other Drawing Modes; see the Drawing Modes in the Menus section).

All of the Shape Tools are activated by clicking on them; the icon is highlighted to show that the Tool is selected. When the Fill gadget is on, the Shape Tools are shown with a filled icon, and any Shape drawn is filled with the current color. To draw with any Shape Tool (except for the Polygon/Straight Line Tool), select the Tool, then move the pointer to the Canvas. Press and hold the left mouse button

as you move the brush in the desired shape. Release the button when you are satisfied with the shape you've drawn.

Freehand (Keyboard Equivalent: s)



*Figure 8.06
Freehand Icon*

This tool creates freehand lines using the current brush and the current color. These lines are subjected to the Drawing Mode in effect. This Tool is not available when the Fill Gadget is activated. If you move the mouse very fast, the line won't be continuous.

Freehand Continuous (Keyboard Equivalent: d—unfilled; D—filled)



*Figure 8.07
Freehand
Continuous Icon*

This tool creates freehand lines using the current brush and the current color. These lines are subjected to the Drawing Mode in effect. When the Fill Gadget is activated, this Tool draws irregular shapes that are then filled with the current color according to the Drawing Mode in effect (make sure that your starting and ending points meet so you have a closed shape to fill). If you draw very swiftly, the brush may fall behind your movements, but it catches up with 100% accuracy, remembering exactly where you've been.

Polygon/Straight Line (Keyboard Equivalent : v—unfilled; V—filled)



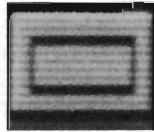
*Figure 8.08
Polygon/Straight
Line Icon*

This tool creates polygons of any shape and size using the current brush and color, or it can be used to draw a straight line. To draw a straight line, click anywhere in the Canvas to establish one end point. As you move the pointer, a straight line is drawn out. Move the pointer until the line is the distance and direction you want, then click the right mouse button and the line is drawn.

To create a polygon, click anywhere in the Canvas to establish the first corner of the polygon. Drag out a straight line, in any direction and length, then click the left mouse button to create another corner. Continue creating corners in this manner until you have completed the next-to-last corner. Then put the pointer where you want the last corner to appear and click the right mouse button. The polygon is completed, with straight lines connecting all corners. With complex polygons, it is best to actually complete the polygon before clicking the right button, to make sure that the polygon is drawn as you want.

When the Fill Gadget is activated, the polygon is filled with the current color according to the Drawing Mode in effect (make sure that your starting and ending points meet so you have a closed shape to fill).

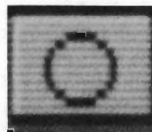
Rectangle (Keyboard Equivalent : **r**—unfilled; **R**—Filled)



*Figure 8.09
Rectangle Icon*

This tool draws rectangles of any size and proportions using the current brush and color. To create a rectangle, click anywhere in the Canvas to establish the first corner of the rectangle. Then drag the rectangle outline out to the desired size and release the mouse button to complete the rectangle. When the Fill Gadget is activated, the rectangle is filled with the current color according to the Drawing Mode in effect.

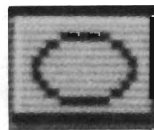
Circle (Keyboard Equivalent : **c**—unfilled; **C**—filled)



*Figure 8.10
Circle Icon*

This tool draws a perfect circle of any size. To create a circle, click anywhere in the Canvas and drag the circle outward to the desired size, then release the mouse button to complete the circle. The point where you click first is the center of the circle. When the Fill Gadget is activated, the circle is filled with the current color according to the Drawing Mode in effect.

Ellipse (Keyboard Equivalent : **e**—unfilled; **E**—filled)



*Figure 8.11
Ellipse Icon*

This tool draws an ellipse of any size. To create an ellipse, click anywhere in the Canvas and drag the ellipse outward to the desired size, then release the mouse button to complete the ellipse. The ellipse can be elongated vertically by moving the mouse pointer up or down, or elongated horizontally by moving the mouse pointer left or right. The point where you click first is the center of the ellipse. When the Fill Gadget is activated, the ellipse is filled with the current color according to the Drawing Mode in effect.

Fill (Keyboard Equivalent : f—off; F—on)



Figure 8.12
Fill Icon

When this icon is activated, any shape drawn with the Shape Tools is filled with the current color according to the Drawing Mode in effect. When the Fill Gadget is highlighted, it is activated, and the Freehand Curve tool disappears. The Shape Tool icons appear as “solid” shapes to show that the Fill gadget is active. If Fill is turned on and the Repeat function is used, the repeated brush stroke will be filled.

Brush Size Selector (Keyboard Equivalents: “-” —smaller brush; “+” —larger brush)



Figure 8.13
Brush Size
Selector

The built-in Brush Shapes are available in seven different sizes. Sizes are selected by clicking on one of the seven brush size icons. The leftmost icon is the largest and the rightmost icon is the smallest. The size change affects all of the built-in Brush Shapes save for the one-pixel brush, which always remains one pixel in size.

By pressing and holding the left mouse button while the pointer is over the Brush Size Selector, the current brush size is displayed. Move the mouse to the left to increase the size of the brush, and move it to the right to decrease the size of the brush. This shows you precisely the size of the brush before you select it.

Brush Shapes (Keyboard Equivalents : “/” —shape toggle; “.” —one-pixel brush)

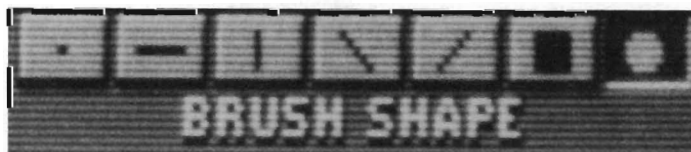


Figure 8.14
Brush Shapes

There are seven built-in Brush Shapes available in Digi-Paint 3; select any of the brushes by clicking on its icon. The first is the one-pixel brush; this brush is not affected by the Brush Size Selector. Next are the horizontal line brush, the vertical line brush, the left slant brush, the right slant brush, the square brush and the round brush. The slant brushes are particularly useful for calligraphy-type effects.

Close Box (Keyboard Equivalent: **Esc**—Open/Close Toggle)

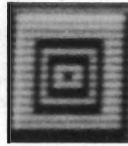


Figure 8.15
Close Box

Clicking this icon (or pressing the **Esc** key) closes the Toolbox, leaving the Canvas unobstructed. Clicking the right mouse button or pressing the **Esc** key brings back the Toolbox.

Controls (Keyboard Equivalent: **F1**—Tools/Controls Toggle)



Figure 8.16
Controls Icon

Clicking this icon switches the Toolbox to the Controls section, described later on in the Reference section.

Text Rendering (Keyboard Equivalent: **F2**—Tools/Text Toggle)



Figure 8.17
Text Rendering
Icon

Clicking this gadget switches the Toolbox to the Text Rendering section, described later on in the Reference section.

Palette (Keyboard Equivalent: **F3**—Tools/Palette Toggle)



Figure 8.18
Palette Icon

Clicking this gadget switches the Toolbox to the Palette section, described later on in the Reference section.

Undo (Keyboard Equivalent: **F4**)

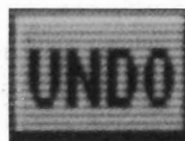


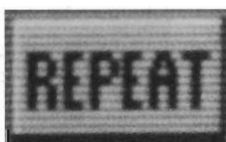
Figure 8.19
Undo Icon

This extremely powerful gadget reverses the effect of the last drawing operation performed with the following exceptions:

- Directly after a file or brush load or save operation
- Directly after a swap screen operation
- Directly after a text to brush operation

You can only Undo since the last time you clicked the mouse button in the Canvas. The Undo gadget will not work on the CopyColor command from the Palette menu; you must use the **Undo** from the **Palette** menu to reverse that operation. You can Undo an Undo operation by clicking the gadget again.

Repeat (Keyboard Equivalent: F5)



*Figure 8.20
Repeat Icon*

Activate this button to repeat the last drawing action on the screen. This may not sound very useful until you realize that you can change colors or activate different shading features and use the Repeat function to place the new colors or shading effects in exactly the same place as your last drawing action. Just like Undo, this feature only works on the actions since your last mouse click in the Canvas.

Magnify (Keyboard Equivalent: **m**—magnify on/off toggle)



*Figure 8.21
Magnify Icon*

Clicking this gadget changes the pointer to a Magnifying Glass and activates the Magnify screen. As you move the Magnifying Glass over the Canvas, the area under the Magnifying Glass is displayed in the Magnify window at 8x magnification. Bring the Magnifying Glass to the area on the screen you want to see close up and click the left mouse button. The area selected is fixed in the Magnify window.

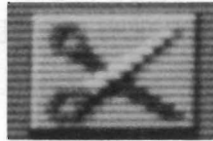
Digi-Paint 3's Magnify screen can be treated exactly as any other normal Amiga screen: it can be moved up or down with its top-line title bar by dragging with the left mouse button pressed, and pushed to back with the front/back gadget in the right hand corner of the title bar.

Display the Toolbox in the Magnify window by pressing the right mouse button.

All of the Tools work normally in the magnified area. You can scroll around in the magnified area by moving the pointer over the magnify screen and using the arrow keys on the keyboard.

Return to the normal Canvas by clicking on the Magnify gadget again, by clicking the Close gadget in the upper left corner of the Magnify window, or by pressing the **Esc** key.

Scissors (Keyboard Equivalent: **b**)



*Figure 8.22
Scissors Icon*

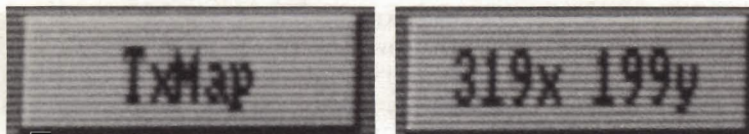
The Scissors are used to create custom brushes, which can be any shape, size, or number of colors. These custom brushes can then be pasted down anywhere in the Canvas using the current Drawing Mode.

The Scissors work in conjunction with the current Shape Tool selected; thus, you can have a freehand selection, a circular, ellipse or rectangular selection, or a polygon selection. Click on the Shape Tool you want to use, then click the Scissors to activate them. Then draw around the area you want as a custom brush and release the mouse button. The area you've defined becomes a custom brush attached to the pointer.

The Shape Tools cannot be used directly with this custom brush, but all of the features in the Mode Menu can be used for some rather startling effects. To remove the custom brush, click on one of the built-in brushes.

An easy way to pick up the shape you've just drawn without including any background is to click the **Scissors** icon and then the **Repeat** icon. The last object drawn is removed from the screen and turned into a custom brush.

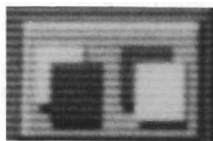
Mode Indicator/Coordinates (Keyboard Equivalent: **g**—toggle)



*Figures 8.23
& 8.24
Mode Indicator/
Coordinates*

This shows the current Drawing Mode selected (see the Mode menu, later in the Reference Section). Clicking on this displays the Coordinates (see the Prefs menu, later in the Reference Section).

Front/Back Gadget



*Figure 8.25
Front/Back
Gadget*

This gadget controls which window is currently on top. Click the left part of the gadget to bring up the Workbench; click the right half of the gadget to bring that window to the front of the screen.

Text Rendering (Keyboard Equivalent: F2—Tools/Text Toggle)



Figure 8.26a
Text Rendering

Fonts (Keyboard Equivalent: i)



Figure 8.26
Fonts Icon

Click this icon to bring up the Font File Requester (see Figure 8.42 and the File Requester description in this reference section for more details), with which you can load in different Amiga fonts.

Point to the disk drive gadget which represents the drive in which your disk with fonts is located. Click with the left mouse button and the files and drawers available on the disk appear in the black area at the bottom of the Font requester (they may already appear if you have used any Load requester previously). Volumes and file drawers appear in white letters; fonts (and other files) appear in gray letters. The name of the volume or drawer selected appears in the black window to the right of the disk drive names. Click on a drawer name with the left mouse button to open the drawer (a drawer is any word in white that is not followed by a colon). The drawer name replaces the name of the disk in the black window. Click on the name of a font (e.g. the font drawer Diamond has 12 and 20 in it), and that font name appears in the black window to the right of the window where the disk or drawer name appears. Most fonts come in several sizes, so you will need to select one, which will appear in the rightmost window at the top of the file requester. If the font you've just selected is the one you want to open, then click on the words Open Font with the left mouse button. There is a brief pause, then the Font requester disappears and the font is now loaded.

Only one font can be loaded into Digi-Paint 3 at a time. If you have already created a text brush before loading a new font, you must click the **Text to Brush** icon in order to use the new font for the current text brush.

Smoothing Off/On (Keyboard Equivalent: \$—on/off toggle)



*Figure 8.27
Smoothing Off/On
Icon*

When the right half of this icon is activated, the font is automatically anti-aliased by using colors selected from the palette to soften the edges and give a much greater apparent resolution. This also results in a horizontal compression of the text. When the left half of this icon is activated, Smoothing is off and no anti-aliasing is used.

Style Selectors (Keyboard Equivalents: “%”—Bold toggle; “^”—Italics toggle; “&”—Underline toggle)



*Figure 8.28
Style Selectors*

These three icons affect the style of the text; the styles (from left to right) are Bold, Italic, and Underline. Click on each one to activate it (when activated, the icon is highlighted). Any or all of these Styles may be selected at one time.

Text Entry Window



*Figure 8.29
Text Entry
Window*

When you click in the Text Entry Window to enter text there, the keyboard commands are temporarily disabled. Any text you type is entered into this Text Entry Window. When you have the text you want, click on the **Text to Brush** icon to the immediate left of the text window (or press the **Return** key) and the text is transformed into a custom brush on the pointer. Click anywhere in the screen to stamp the text down in the current color and according to the current Drawing Mode in effect. If the text you type is longer than the window, the text scrolls. Use the arrow keys or point and click to move the cursor to a new location in the text string.

Note that if you want to stamp the text down in a different color than the color you used when creating the custom brush, you must select that new color then click the **Text to Brush** icon again to recreate the custom brush of the text with the new color. This is also true if you change drawing modes, alter the Transparency controls, or change other settings.

Tools (Keyboard Equivalent: **F1**—Tools/Text Toggle)



Figure 8.30
Tools Icon

Click this gadget to display the Tools section of the Toolbox.

The Palette (Keyboard Equivalent: **F3**—Tools/Palette Toggle)



Figure 8.31
Palette Controls

Tone Selector

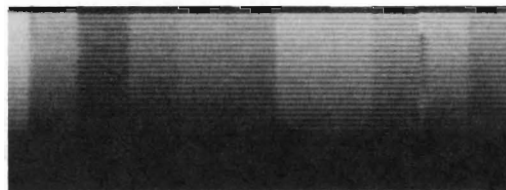


Figure 8.32
Tone Selector

Underneath the 16 Color Palette are a range of colors based on those colors at the top. They give a range of colors from the lightest to the darkest possible that includes the color at the top. These colors may be chosen as the current color merely by clicking on them. If you're looking for a shade just slightly different from one of the colors in the 16 Color Palette, it's often easiest to find it here.

RGB Sliders

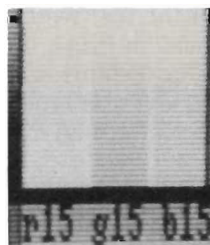


Figure 8.33
RGB Sliders

These three sliders are located between the Tone Selector and the Color Selectors at the bottom of the Palette Controls. The sliders, from left to right, represent the Red, Green, and Blue values of the current color on a scale from 0 to 15 (which results in 4096 different possible combinations or colors). These sliders change dynamically as the selected color changes. You can also move these sliders to alter the Current Color by pointing to them and holding down the left mouse but-

ton while you drag them up or down. This is another way to select a desired color.

Pick Color (Keyboard Equivalent: “,”)

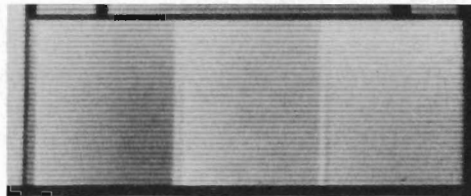


*Figure 8.34
Pick Color Icon*

Activate this button next to the Front/Back gadget to pick a color from the screen; this saves you the trouble of trying to figure out exactly what color you want by trying to use the Color Menus. Once the pointer appears, hold down the left mouse button as you move the pointer across the screen. You'll see the colors change in the Current Color Bar and the RGB Sliders. Once you release the left mouse button, the selected color is chosen, and you can then use any of the brushes to draw in that color.

After you select Pick Color, you can close the Toolbox by pressing the **Esc** key so that you can pick a color from anywhere on the screen.

Color Selectors



*Figure 8.35
Color Selectors*

These three large squares at the right of the Palette Controls represent portions of the 4096 colors available in Digi-Paint 3. Since thousands of colors can't be shown in a small area, these squares change dynamically as you move the pointer over them while holding down the left mouse button. As you move toward the color you want, the other squares show all possible shades of that color. When you move around the leftmost square, the red value of the color stays constant while the blue and green components change. Similarly, the center square holds the Green component steady, and the rightmost square holds the Blue component steady. You can see the RGB Sliders move as you move around the Color Selector, and this can guide your color choice. When you release the mouse button, the last color selected appears in the Current Color Bar.

Controls (Keyboard Equivalent: F1—Tools/Controls toggle)

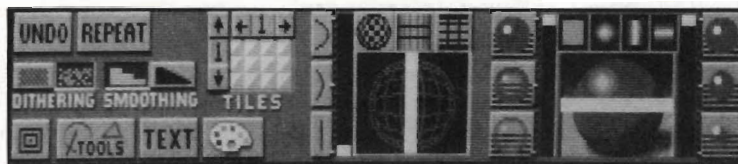


Figure 8.36
Controls

Dithering (Keyboard Equivalents: “!”—off; “@”—pattern; “#”—random)



Figure 8.37
Dithering Icon

Clicking the left part of this icon selects a regular pattern for mixing colors when you are using the Range, Lighten, Darken, Colorize, RubThru, Blur, or TxMap drawing modes. Clicking the right part of this icon selects a random pattern for mixing colors when you are using the Range drawing mode. If neither part of the icon is selected, no dithering is used (color transitions occur in smooth bands). Dithering (especially random dithering) adds more colors to the screen by using a mixture of two colors to simulate a third color. This process makes the results of color transformations more accurate. Digi-Paint 3 uses 30 bits per pixel accuracy (over 1 billion colors) to calculate dither patterns.

Smoothing Off/On (Keyboard Equivalent: “/”—off; “?”—on)



Figure 8.38
Smoothing Icon

When the right half of this icon is activated, the drawing created is automatically anti-aliased by using colors selected from the palette to soften the edges and give a much greater apparent resolution. When the left half of this icon is activated, Smoothing is off and no anti-aliasing is used. This function is only available when you are in TxMap drawing mode.

Tile Controls

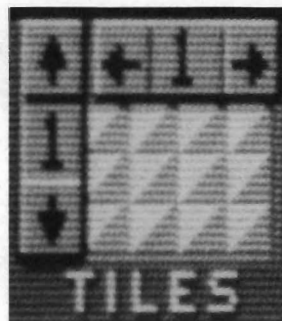


Figure 8.39
Tiling Controls

The Tile Controls allow you to paste down the custom brush in multiple copies (up to 9 by 9). This is done with whatever degree of Warping is used with the Warping Controls. Tiling is only active when TxMap Mode is on. First of all, you must make a custom brush, then use the **Copy This Brush** command under the **Swap** sub-menu in the **Brush** menu. This creates a copy of the custom brush, and enables TxMap in the Mode menu. Pull down **TxMap** from the Mode menu and go to the Controls section of the Toolbox. The Tile controls are now active.

Click on the arrows at the top of the Tile Controls to increase or decrease the number of copies horizontally; click the arrows to the left of the Tile Controls to increase or decrease the number of copies vertically. Choose any Shape Tool from the Toolbox, activate **Fill**, and draw a shape on the Canvas. The custom brush is drawn into that shape with the indicated number of copies. For instance, if you have 2 chosen for the horizontal copies and 3 for the vertical copies, you'll end up with six copies of the original custom brush within the new shape you've drawn.

The Smoothing and Dithering controls also affect the results of Tiled brushes.

Warping Controls

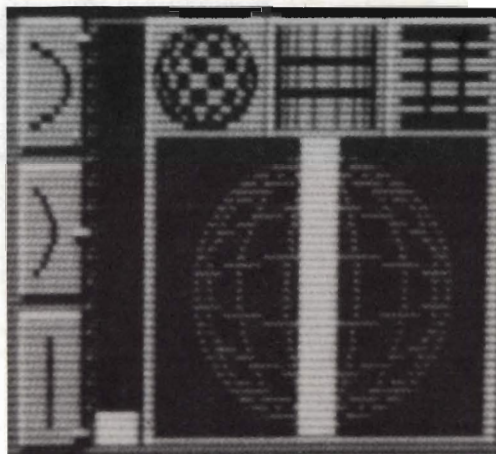


Figure 8.40
Warping Controls

Warp Enable

These controls are only operative when TxMap (texture mapping) Mode is active. To begin, you must first select a custom brush using the Scissors (as described earlier) and make a copy of it (using the **Copy This Brush** command under the **Swap** sub-menu in the **Brush** menu). Then pull down **TxMap** from the Mode Menu.

Warp Amount

The Warping Slider on the left of the Warping Controls determines the amount of warping in the resulting image, from none to severe; the most severe warping is at the top of the slider. The three icons to the left of the slider are preset positions at the bottom, middle, and top of the slider. Click any one of these icons to move the slider to that position.

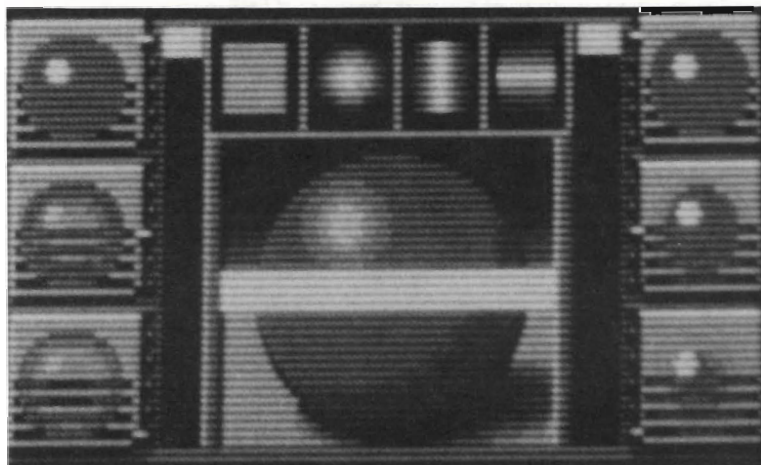
Warp Direction

The Warping Direction controls across the top of the Warping Locator (the large area to the right of the Warping Slider) determine the position of the “warping point”; that is, the point or axis along which the picture is warped. The icon on the left is Point Warping, meaning that the image is warped both horizontally and vertically. The icon in the middle is Horizontal Warping, and the icon on the right is Vertical Warping. Choose any one of these and then move the resulting Warping Point in the Warping Locator, the large area below these icons.

When you have adjusted these controls to your satisfaction, click in the Canvas and drag out the outline of the current Shape Tool you’ve selected to any size and release the mouse button. The custom brush that you copied is then displayed with the warping determined by the TxMap controls.

When these controls are active, the Tiling Controls are also activated. The Dithering and Smoothing controls also affect the results of the Warping Controls and TxMap operations.

Transparency Controls



*Figure 8.41
Transparency
Controls*

These controls determine the amount of transparency present when you draw or paste, and also the placement of the “hotspot” of the transparency. In addition, these controls affect the placement of Range Colors when the Range painting mode is active.

The left-hand vertical slider and the three icons to its left control the Hotspot transparency. At the bottom of the slider the Hotspot is entirely transparent, and at the top of the slider the Hotspot is entirely solid. The three icons to the left of the slider are preset positions at the bottom (100% transparent), middle (50%

transparent), and top (opaque) of the slider. Click any one of these icons to move the slider to that position. The right-hand vertical slider works the same way but controls the transparency of the Edge of the drawn shape or pasted brush

In the middle of the Transparency controls is the Hotspot Locator, with four buttons above it; from left to right, those buttons are the Off button, the Point Hotspot, the Vertical Hotspot, and the Horizontal Hotspot. Once the Hotspot shape is selected, it can be positioned anywhere inside the locator by clicking on it with the left mouse button and dragging it to the desired location.

Menus

This section explains each of the menu commands available. The menus appear when you press the right mouse button; move the pointer to the desired menu and the commands available on the menu are displayed. Move the pointer down until the command you want is highlighted, then release the mouse button and the command is activated. Some commands have submenus, which appear when you move the pointer over that command. To select a command on a submenu, move the pointer to the right until the command you want is highlighted, then release the button and the command is selected. Some menu commands may be checked or starred; this means that command is currently in effect (for instance, the current drawing mode is shown with an asterisk).

File Requester

Digi-Paint 3's file requester appears in 5 instances: Picture Loading and Saving, Brush Loading and Saving and Font Loading. The File Requester works identically in all of these instances, except as noted in the individual reference listings for these functions.



Figure 8.42
The Digi-Paint 3
File Requester

In the upper left corner of the File Requester is the Close Box; clicking here with the left mouse button closes the File Requester and returns you to the Toolbox. Directly to the right of the close gadget are three disk drive gadgets—**df0:**, **df1:**, and **dh0:**—referring to the first, second, and hard disk drives of your Amiga. Clicking any of these gives you a directory of files located in that drive.

The files and drawers available on the disk appear in the black area at the bottom of the File Requester. Volume names (which are followed by a colon) and file drawers appear in white letters; file names appear in gray letters. The name of the disk appears in the black window to the right of the disk drive gadgets.

Click on a drawer name with the left mouse button to open the drawer. The drawer name replaces the name of the disk in the black window. Click on the name of a file, and that file name appears in the black window to the right of the window where the disk or drawer name appears. If the file you've just selected is the one you want to open, then click on the words Open File with the left mouse button.

Other features of the File Requester

- Clicking on the "/" that's between the disk drive gadgets and the window where the disk name appears, moves you from the directory of the drawer that you're in back to the directory of the whole disk (or the next "higher" drawer, if you're using nested drawers).
- Click on the ":" button to go to the root directory of the current selected volume.
- If there are more file names than the black file name area can hold, the gray bar to the left of those names can be used to scroll the window showing the file names. Point to this gray bar and hold down the left mouse button, then drag it up or down to scroll the file names. (Nothing happens unless there are more file names than the window can show.)
- If you have already seen the file or directory that you want during the listing of a large directory, clicking the right mouse button or pressing the space bar will abort the rest of the listing.
- Double-clicking a file name will also cause it to open.
- Clicking on the left side Foreground/Background gadget in the upper right-hand corner of the file requester will move you back to the Amiga Workbench screen if it is still open; this makes it easy to format a blank disk if you've forgotten to do so before saving a picture or brush.

Picture Menu

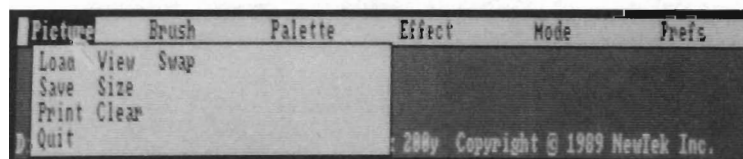


Figure 8.43
Picture Menu

This menu controls various operations concerned with the picture, including loading, saving, printing, and the screen size.

Load (Keyboard Equivalent: l)

Activating this command brings up the File Requester (see Figure 8.42 and the File Requester description in this reference section for more details), with which you can call up picture files that you have saved on disk (or files that someone else created and saved on disk).

Point to the disk drive gadget which contains the disk with the picture file you want to load. Click with the left mouse button, and the drive whirs for a moment and the files and drawers available on the disk appear in the black area at the bottom of the Load Requester.

Click on a drawer name with the left mouse button to open the drawer. The drawer name replaces the name of the disk in the black window. Click on the name of a file, and that file name appears in the black window to the right of the window where the disk or drawer name appears. If the file you've just selected is the one you want to open, then click on the words **Open File** with the left mouse button.

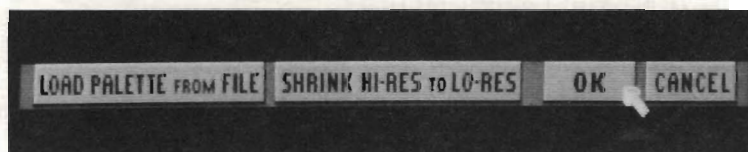


Figure 8.44
Load Palette/
Shrink Hires
Requester

There is a brief pause, then the File Requester disappears and a small requester appears. The **Load Palette From File** button is already selected; if you don't want to use the palette taken from the file, click it to turn it off so that the picture uses the palette currently in Digi-Paint 3 (see the section on Color Palette for more information). Keeping the current palette allows you to use the current colors you have selected as the 16 Color Palette; the incoming picture may have some "color fringing" (see Appendix B) because it is not using its original palette.

If the picture is in hi-res (640 × 200 or 640 × 400 resolution), a button labeled **Shrink Hi-res to Lo-res** appears in the requester. Select that button to remap the picture into Lo-Res mode. This process uses sophisticated color routines to give results that are almost identical to the original file. If you don't select this, the picture is loaded in as a super bitmap in its original dimensions.

Click **OK** to load the file; click **Cancel** to return to the File requester.

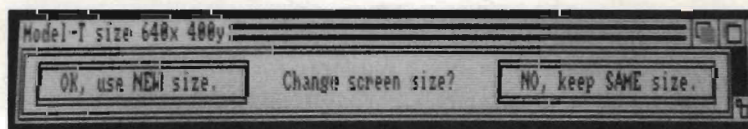


Figure 8.45
"Change Screen
Size?" Requester

When you click **OK** and the picture is a different size than the current Canvas, another message requester appears, saying **Change Screen Size?** Click either the **Yes** or **No** button. If you select **Yes**, then Digi-Paint 3 changes the Canvas to conform to the size of the picture file. If you click the **No** button, then Digi-Paint 3 loads in as much of the picture as it can into the current Canvas starting from the upper left-hand corner.

If you select "Yes", and you have an active swap screen, another requester appears:



Figure 8.46
"Delete Swap
Screen?"
Requester

Selecting **OK, do size change** changes the screen size and deletes the swap screen. Selecting **CANCEL size change** instructs Digi-Paint 3 to load in as much of the file as it can into the current screen format, starting with the upper left-hand corner.

Save (Keyboard Equivalent: p)

The Save command is used to store the work you've done in a file on the disk, so that your work may be called up again by Digi-Paint 3, or called up from another program such as Digi-View Gold. The Save File Requester is identical to the Load File Requester in its appearance and function (see figure 8.42 and the File Requester description in this reference section for more details), except that the words **Open File** have been replaced with **Save File**. Type in a new name for the file you want in the File Name Window by first clicking in that window with the left mouse button, then typing the name you want. Then press **Return** to save the file, or point to **Save File** and press the left mouse button. If your disk is full and has no more room for files, Digi-Paint 3 warns about this when you try to save the file. It's generally a good idea to have some data disks formatted and ready just in case you run out of room on your disk.

Print

To print the picture that's on your Digi-Paint 3 screen, select this menu item. Make sure your printer is already connected before using this feature. A requester appears that asks for the number of copies you want to print. Click on the arrows to change this number up or down. The number of copies can be changed at any time during the printing process. Click **OK** to print; click **Cancel** at any time to stop the printing process and return to the Toolbox.

The Workbench included on the Digi-Paint 3 disk has Preference settings for most of the popular printers available for use with the Amiga. Please refer to the Amiga Users Manual if you have any questions about how to set up Preferences to work with your particular printer.

Quit

Select this menu item to exit Digi-Paint 3 and return to the Workbench. A message appears when you select Quit, asking if you really want to quit. Click **Yes** to quit; click **No** to return to the Toolbox. **CAUTION:** If you haven't saved the file you've been working on, you'll lose that file when you quit.

View (Keyboard Equivalent: o—normal overscan; O—severe overscan)

This option sets the Amiga to the overscan display mode. It displays more of the picture by shifting it up and to the left, thereby filling the overscan borders.

Size

This brings up the Size Requester (see Figure 8.47), where you can change the size of the Canvas.



Figure 8.47
Size Requester

The horizontal number of pixels is shown in the left-hand box. Click the left arrow to decrease the size, and click the right button to increase the size. To the right of this box is the vertical number of pixels; click the large down arrow to decrease the number of pixels in large increments, or click the small down arrow to decrease the number of pixels in small increments. The up arrows to the right increase the number of vertical pixels in a similar manner. The **Restore** button resets the screen size to its default (320x200) setting. Click the **Interlace** button to have the screen displayed in interlace mode (it is highlighted when selected). The next box shows the screen size selected. Click **OK** to accept the new size and return to the Toolbox. If you selected a new size that is smaller than the previous picture size, portions of the picture are lost as the screen size is reduced. If you choose a larger size than the current picture, the picture appears in the upper left corner of the new screen size. Click **Cancel** to return to the Toolbox without changes.

Clear (Keyboard Equivalent: K)

This command clears the Canvas to the current selected color. All drawing on the Canvas is lost (Undo will retrieve the image). The Swap Screen and the Brush Copy are unaffected by this command.

Swap (Keyboard Equivalent: j)

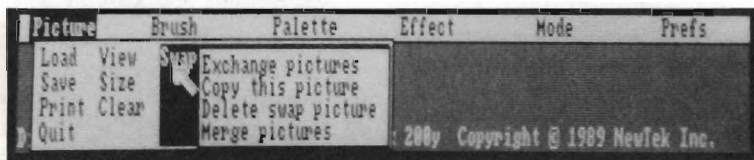


Figure 8.48
"Picture Swap"
Sub-Menu

This submenu item controls the Swap Screen that Digi-Paint 3 makes available to you. In essence, you can have two pictures present in Digi-Paint 3 at the same time, one in "front" and one in "back". The Swap submenu gives you the following commands: **Exchange Pictures**, **Copy This Picture**, **Delete Other Picture**, and **Merge Pictures**. **Exchange Pictures** will switch the front and back pictures. **Copy This Picture** is the only feature active when you start up using Digi-Paint 3. Use this feature to copy whatever is in the current screen of Digi-Paint 3 to the spare screen. Using this feature requires extra memory, which may not be available if the screen is very large (or in a 512K machine). If the Swap Screen is not available, the screen flashes when you try to use it, telling you that there's not enough memory to create a Swap Screen.

For instance, load the **Lady** picture, then select **Copy This Picture**. The picture will be copied to the spare screen. When this happens, you'll notice that the

RubThru button is no longer grayed out (see **RubThru**). Now use **Clear** to clear the front screen to the color selected. Scribble on this screen with any brush, then go back to the **Swap** menu and use the **Exchange Pictures** command to switch the front and back pictures. **Delete Other Picture** will remove the picture stored in the spare screen and free up the memory allocated, while **Merge Pictures** will merge the front and back pictures using the operation chosen from the Mode Menu. With Merge, the whole back picture is the “paint” (see the Mode Menu section for a more detailed explanation).

Brush Menu

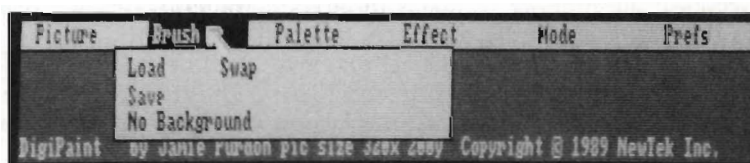


Figure 8.49
Brush Menu

Load (Keyboard Equivalent: L)

Activating this command brings up the Load Brush File Requester, where you can call up custom brushes that you have saved on disk (or files that someone else created and saved on disk). The Load Brush File Requester is identical to the File Requester in its appearance and function (see Figure 8.42 and the File Requester description in this reference section for more details), except that the words **Open File** have been replaced with **Open Brush**.

Point to the disk drive name where your disk with brush files is located. Click with the left mouse button, and the files and drawers available on the disk appear in the black area at the bottom of the File Requester.

Click on a drawer name with the left mouse button to open the drawer. The drawer name replaces the name of the disk in the black window. Click on the name of a file, and that file name appears in the black window to the right of the window where the disk or drawer name appears. If the file you’ve just selected is the one you want to open, then click on the words **Open Brush** with the left mouse button.

The brush loads in from the disk and appears attached to your pointer. The brush can then be used just as any other custom Brush (see the Scissors icon in the Toolbox section).

Save (Keyboard Equivalent: P)

The Save command is used to store the custom brush you’ve created in a file on the disk, so that the brush can be called up again for use in another picture. The Save Brush File Requester is identical to the Load File Requester in its appearance (see Figure 8.42 and the File Requester description in this reference section for more details), except that the words **Open File** have been replaced with **Save Brush**. Type in a new name for the brush you want in the File Name Window by first clicking in that window with the left mouse button, then typing the name

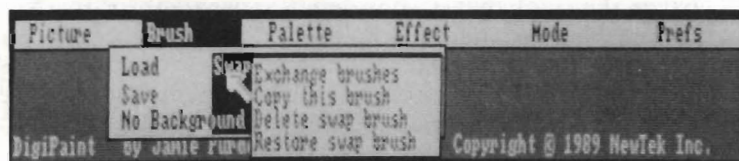
you want. Then press **Return** to save the brush, or point to **Save Brush** and press the left mouse button. If your disk is full and has no more room for files, Digi-Paint 3 warns about this when you try to save the file. It's generally a good idea to have some data disks formatted and ready just in case you run out of room on your disk.

NoBackground (Keyboard Equivalent: **t**—off; **T**—on)

This command makes the background color (color 0) of the brush transparent when the brush is cut out. It is very useful when you have an unusual shape to cut out from a normal background (a doughnut shape, for example). You need not carefully trace the shape; just turn on **NoBackground** and cut it out roughly. Anywhere that color 0 occurs inside the area you cut becomes transparent.

The background color is always color 0, which in the default palette is black (the leftmost color in the 16 Color Palette). Use the **CopyColor** command from the Palette menu to change color 0.

Swap (Keyboard Equivalent: **J**)

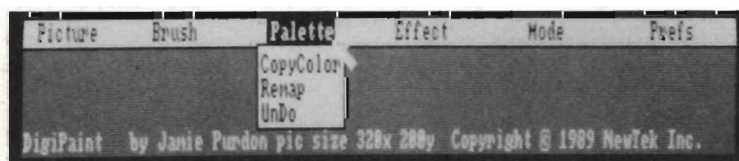


*Figure 8.50
Brush Swap Sub-Menu*

This submenu item controls the custom brush Copy that Digi-Paint makes available to you. In essence, you can have two brushes present in Digi-Paint 3 at the same time, one displayed and one saved. The Swap submenu gives you the following commands: **Exchange Brush**, **Copy This Brush**, and **Delete Swap Brush**. These commands are only available when you have cut out a custom brush.

Exchange Brush switches the current and swap brushes. **Copy This Brush** is the only feature active when you cut out a custom brush and have not yet used any of the Swap commands; use it to copy the current custom Brush to the "swap brush". **Delete Swap Brush** removes the brush stored as the swap brush and frees up the memory allocated to it. **Restore Swap Brush** displays the swap brush; the currently displayed brush is deleted.

Palette Menu



*Figure 8.51
Palette Menu*

These commands control changing colors in the 16 Color Palette.

Copy Color



Figure 8.52
CopyColor Pointer

This command is used to enter colors into the 16 Color Palette. Digi-Paint allows you a palette of 16 colors that can be used anywhere on the screen without causing a “fringe” color effect (see Appendix B for a more detailed explanation). To use **CopyColor**, first select the color that you want to put into the palette (use the Color Selector or the **PickColor** function; see elsewhere in the Reference section for details). Select **CopyColor** from the Palette menu; the pointer changes to a pointer with a question mark. Click on the color in the 16 Color Palette that you want replaced. After a moment, the color is replaced in the palette and wherever it occurs in the painting. If you do this with an existing painting, this will generally mess up the picture somewhat (especially if the new color is very different from the old color). Use the **Undo** command from the Palette menu to reverse this choice.

To change the color that is considered transparent for the **NoBackground** function, make the color that is to be transparent the current color. Then select **CopyColor** to get the pointer with the question mark. While the pointer is in this form, select **NoBackground** from the Brush menu and the color you selected will be transparent for the purpose cutting out brushes.

Remap

This command can be used after you have changed one or more of the 16 Palette colors. **Remap** uses the new palette colors to try and recreate the original picture's colors. This feature is handy if you want to adjust the palette to include new colors while you keep the original picture intact. **Remap** is particularly important when working with digitized images. If you need to put new colors into the palette, try to replace colors that are similar to other colors in the palette; when you **Remap**, the difference between the new picture and the original is minimized.

Undo

This Undoes the effects of any **CopyColor** or **Remap** operations.

Effect Menu

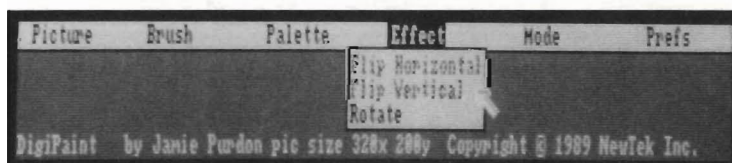


Figure 8.53
EffectMenu

This menu affects the current custom brush. If no custom brush is selected, then none of these commands are available.

Flip Horizontal (Keyboard Equivalent: x)

This command flips the current custom brush around a vertical axis.

Flip Vertical (Keyboard Equivalent: y)

This command flips the current custom brush around a horizontal axis.

Rotate 90 degrees (Keyboard Equivalent: z— clockwise; Z—counter-clockwise)

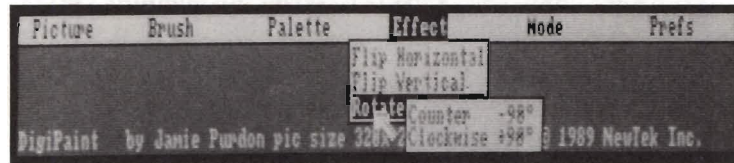


Figure 8.54
Brush Rotate Sub-
Menu

This command rotates the current custom brush 90 degrees in the clockwise or counter-clockwise direction, depending on the submenu item you choose. If you want to flip a custom brush 180 degrees, it is faster to Flip Horizontal and then Flip Vertical.

Mode Menu

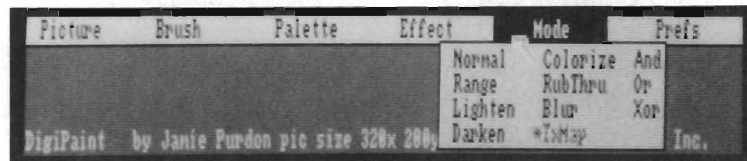


Figure 8.55
Mode Menu

These drawing modes are very powerful ways to create and alter paintings. Their effect extends to all of the Shape Tools, Brushes (including custom brushes) and text. The current drawing mode is displayed in the Mode Indicator box present in the Tools and Text sections of the Toolbox, in the lower right-hand corner. It's important to keep track of what drawing mode is in use; otherwise you could get unexpected results when you draw.

Most of the drawing modes are affected by the Dithering settings found in the Controls section of the Toolbox; the exceptions are Normal, And, Or, and Xor drawing modes.

Normal (Keyboard Equivalent: "" or "")

This is the default drawing mode, where the paint you apply to the Canvas is the current color you have selected. If you are using a custom brush, the custom brush is applied to the Canvas using all the colors in the custom brush.

Range (Keyboard Equivalent: 1)

This drawing mode applies paint to the screen using the Range Colors on the Color Strip. While in this drawing mode, the Current Color is not used; only the Range Colors. Use the Transparency controls to change the location of the left-most Range Color (see Transparency controls for a complete explanation). The

Point Hotspot in the Transparency controls is automatically turned on when you enter this drawing mode. If you turn off the Hotspot, then only the right-hand Range Color is used (though if Dithering is on, you may see specks of other colors).

If you are using a custom brush, the Range Colors are stamped down in the shape of the custom brush (but using none of the colors of the custom brush).

This drawing mode can be used to create highlighting effects, backgrounds with graduated shades of multiple colors, or other lighting effects.

Lighten (Keyboard Equivalent: 2)

This lightens the color of the screen in the area where you apply paint. This function is very useful with the Repeat command, so that you can lighten an area you've just drawn.

If you are using a custom brush, Lighten uses only the shape of the custom brush (but none of the colors of the custom brush).

Darken (Keyboard Equivalent: 3)

This darkens the color of the screen in the area where you apply paint. This function is very useful with the Repeat command, so that you can darken an area you've just drawn.

If you are using a custom brush, Darken uses only the shape of the custom brush (but none of the colors of the custom brush).

Colorize (Keyboard Equivalent: 4)

This mode changes color values (chrominance) on the screen without affecting their brightness (luminance). The new color is the same as your current value, but with the same brightness as the old color. This is a very powerful feature that can be used for such things as colorizing a black and white picture, as shown in the tutorial. Or you can use this to change the colors of an area on the Canvas. Colorize is affected by the Dithering controls, so if you want a pure color turn off Dithering.

If you are using a custom brush, Colorize uses only the shape of the custom brush (but none of the colors of the custom brush) with the Current Color.

RubThru (Keyboard Equivalent: 5)

This mode is only active when you have a second picture in your Swap Screen. You must choose **Copy This Picture** from the **Swap** submenu of the **Picture** menu in order to activate **RubThru**. **RubThru** brings portions of the "back" picture to the "front" screen (the one that you're looking at). Activate **RubThru** and then use any of the Transparency features, **Fill**, or any brush. The Transparency controls can be used with **RubThru** to create very misty montage effects.

If you are using a custom brush, **RubThru** uses only the shape of the custom brush (but none of the colors of the custom brush).

Blur (Keyboard Equivalent: 6)

This Mode softens the edges of all color transitions, acting like a watercolor overlay on the painting. Using this effect repeatedly (by clicking the **Repeat** key) creates a very watery effect. Note that the Transparency controls can reduce the amount of Blur being used in an area.

If you are using a custom brush, Blur uses only the shape of the custom brush (but none of the colors of the custom brush).

TxMap (Keyboard Equivalent: 7)

This drawing mode allows you warp or resize any custom brush, and fit it into any shape you draw (including text). In order to activate this mode, you must first make a custom brush (using the **Scissors**, as described elsewhere in the Reference section). Then use the **Copy this Brush** command from the **Swap** submenu on the **Brush** menu to create a copy of the custom brush. Now the **TxMap** command is available on the **Mode** menu. After you select **TxMap**, switch to the Controls section of the Toolbox. There you will see that the Warping controls are available, as well as the Tile Pattern controls and the Smoothing controls. The use of these controls is described further in the Controls section of the Reference section.

Remember that each time you use TxMap, it is operating on the copy of the original custom brush. If you cut out a new custom brush and then paste it down, then TxMap maps the original custom brush onto the shape of the new custom brush using the Warping Controls settings. The effects of this can get rather complicated, especially if you also have the Transparency controls turned on.

And (Keyboard Equivalent: 8)

This drawing mode is similar to using a colored filter (of the Current Color) on the area of the Canvas affected. If you are using a custom brush, And uses only the shape of the custom brush (but none of the colors of the custom brush) with the Current Color.

Technically, And is a binary operation that compares the RGB numbers of the paint to the screen. This command operates on the RGB values as binary numbers; that is, And converts the base 10 RGB values into binary, then compares the binary values of the paint and the screen pixels. In this case, the result of the comparison is a 1 only if both of the numbers are ones. The effect of And is to push the affected colors in the direction of the paint you're using. And is also useful to remove other colors. For instance, if you And with Red 15 (Green & Blue at 0), the result will be the pure red separation of the picture.

Or (Keyboard Equivalent: 9)

This drawing mode is similar to blending light sources (of the Current Color) on the area of the Canvas affected. If you are using a custom brush, Or uses only the shape of the custom brush (but none of the colors of the custom brush) with the Current Color.

Technically, this command operates on the RGB values as binary numbers; that is, Or converts the base 10 RGB values into binary, then compares the binary values of the paint and the screen pixels. If either or both of the binary digits are 1, the result is a one. The effect is usually to add color, but this will vary depending on the RGB values of your paint.

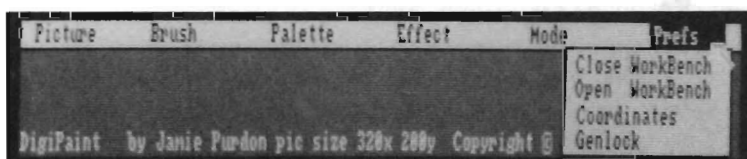
Xor (Keyboard Equivalent: 0)

This drawing mode creates a negative effect (of the Current Color) on the area of the Canvas affected. If you are using a custom brush, Xor uses only the shape of the custom brush (but none of the colors of the custom brush) with the Current Color.

Use pure white with Xor to create a negative effect on the picture. Some very interesting false color effects can be created by Xor with other colors like red or blue.

This function is perhaps the strangest of all of the mode functions. The title (pronounced Ex-or) refers to a function in mathematical logic called an "exclusive-or" operation. This command operates on the RGB values as binary numbers; that is, Xor converts the base 10 RGB values into binary, then compares the binary values of the paint and the screen pixels. Those of you familiar with binary logic should be able to take it from there. The rest of us will have to be content with experimentation to determine exactly what Xor does. For the most part, Xor will reverse the colors of the area you act upon; this is especially the case if you use a white brush (RGB values of 15).

Prefs Menu



*Figure 8.56
PrefsMenu*

This menu controls some of the basic settings of Digi-Paint 3.

Close Workbench

This command closes the Workbench, thus free-ing more memory for Digi-Paint 3. This is very handy if you have a particularly large Canvas or only 512K of memory. If this command is selected, then Digi-Paint 3 always tries to keep the Workbench closed.

Open Workbench

If you need to open the Workbench, use this command. Note that opening the Workbench uses up some memory which Digi-Paint 3 could use for the Canvas. When this command is selected, Digi-Paint 3 always tries to keep the Workbench open.

Coordinates (Keyboard Equivalent: **g**—coordinates/mode toggle)

This command activates or deactivates the coordinates, which appear in the Toolbox window replacing the Mode Indicator (clicking the Mode Indicator also brings up the Coordinates). The coordinates show the distance in pixels from the upper left corner of the Canvas. When you begin to draw, the coordinates become relative to the starting point of the drawing. If the Toolbox has disappeared as you draw, press the **Esc** key or right mouse button to bring it back so that you can see the coordinates.

Genlock

This command forces Digi-Paint 3 to ignore color 0 and never use it in any painting operation while this command is active. If you are using a genlock device, then all areas of color 0 in the picture are replaced with the other video source being brought in by the genlock. This command lets you use all of Digi-Paint 3's features without leaving "color 0 holes" in a genlocked image. (Note: color 0 is the leftmost color in the 16 Color Palette.)

NOTES

8

Chapter 9

Transfer 24

NOTES

Chapter 9: Transfer 24

Introduction

The Transfer 24 software contains much of the image-processing capabilities of NewTek's award-winning Digi-View Gold software. Adding the Transfer 24 software to Digi-Paint 3 gives you a complete set of painting and image-processing tools. Those of you who already have Digi-View 3.0 software will notice that the changes are minor, and if you know how to use Digi-View, you already know how to use Transfer 24.

Getting Started

Before you begin, make a working copy of the Transfer 24 disk using the standard AmigaDOS copy procedures.

Load the Transfer 24 program by double-clicking the program icon. The startup screen appears, where you can choose the resolution mode (see Figure 9.01).



Figure 9.01
Startup Screen

Click on the **Off** or **On** buttons for each entry. The selected buttons are highlighted. As you choose different options, the numbers inside the Width and Height buttons change to reflect those options. You can also click the width and height buttons repeatedly to cycle through all the available sizes in that dimension. Click **OK** to accept the settings and enter Transfer 24; click **Exit** to return to the Workbench. These settings control the pixel resolution of the screens; the color resolution (for instance, 32 color or HAM) is controlled from within Transfer 24.

Project Menu

New

Pulling down this menu item clears the Amiga's memory of any images currently in Transfer 24. CAUTION: If you haven't saved the image on the screen before you use New, the image is lost.

Load

Pull down this menu item to bring in IFF (Interchange File Format) or Digi-View and Digi-View Gold RGB and IP files that you've stored on a disk. (IFF files are a standard format on Amiga graphics programs; any IFF image can be brought into Transfer 24.) When you activate this item, the Load requester will appear.

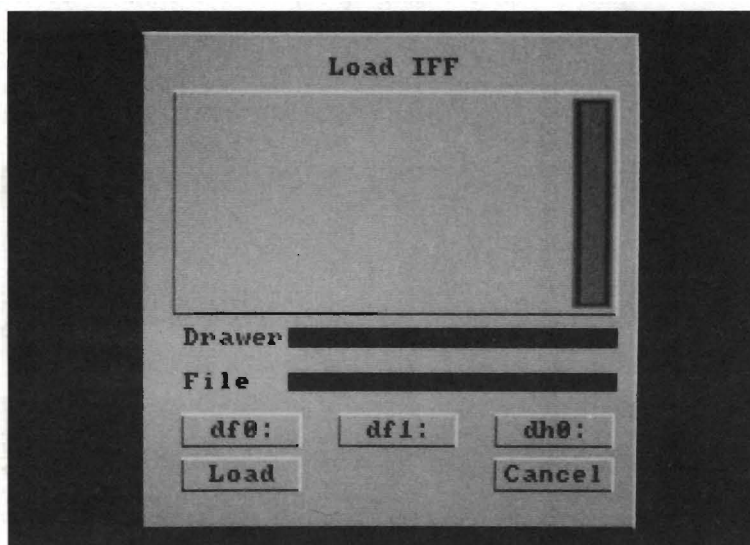


Figure 9.02
Load Requester

The requester says **Load IFF** at the top, and below that all of the files on the disk are displayed. If there are more files on the disk than can be displayed in the window, drag the gray bar to the right of the window and more file names will be revealed. File names will be in a dark color, while drawers will be in a light color (files are often stored in drawers; see your Amiga manual for more information). If the file you want is in a drawer, simply click on the drawer name and the contents of that drawer will be displayed. If you want to return to the "outside" of the drawer (the root directory), click on the button at the bottom of the Load requester with the disk drive name on it (the first internal disk drive is named **df0:**; the second drive is named **df1:**; and the hard disk drive is named **dh0:**). When you click on the file name that you want to load, the name appears in the File window. The disk name will appear in the Drawer window only if you've switched drives by clicking on the drive buttons, and the drawer name (if any) will appear instead of the drive name.

When you have the file name in the window, click on **Load** and the file will be loaded into Transfer 24. If you don't want to load a file at all, click **Cancel** and you'll be returned to the Transfer 24 screen.

Loading an IFF file will automatically convert it to the current resolution mode and number of colors that you have set in the Controls requester. This format conversion is a very useful feature. Once you've converted a file, you can then save it out (usually under a different name to preserve the original).

In order to convert your picture to the current resolution mode without the bottom and left sides being cut off or left black, make sure that you have saved the picture from Digi-Paint 3 as an even multiple (for shrinking) or sub-multiple (for enlarging) of the new resolution mode in both the horizontal and vertical directions.

Examples:

If your current resolution is	Make sure your picture size is
320×400	640×200, 320×200, etc.
384×200	768×400, 384×400, etc.
704×480	352×240, 704×240, etc.

Note that Transfer 24 cannot load in all super bitmap pictures created by Digi-Paint 3. The maximum size picture allowable in Transfer 24 is 768 × 480 pixels.

Save

This menu item allows you to save digitized images as an IFF file that can be read by other IFF-compatible programs. The requester is the same as the Load requester, except for two things: the top of the requester is labeled **Save**, and the button on the bottom left-hand corner of the requester is labeled **Save**. The title of the requester will change, showing the number of colors you are saving in the image. To save the file, first make sure that you are saving to the correct disk. Click the drive buttons below the file window to see the contents of each disk. When you have the drive correctly assigned, click in the File window and a cursor will appear. Type in the name you want to use for the file, then click on **Save**. Remember to use a different name than any existing file, unless you want to erase a current file. The name cannot be longer than the window. It helps to use names that are easily remembered.

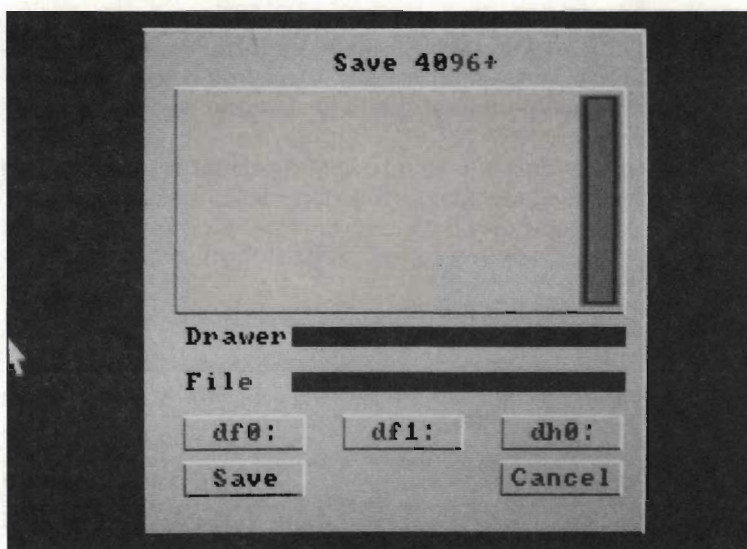


Figure 9.03
Save Requester

Load Palette: This menu item loads the palette associated with an image into the Palette controls. As you'll see later in the Controls menu, you can display an image in 32 colors or less. Once you've constructed that particular color palette, you can use the identical palette by activating **Load Palette** and selecting the file that you want from the Load requester that appears. Select the file name and click Load, just as you would load a file. Nothing appears to have changed on the screen, but when you go to the Palette controls, you'll see that the palette from the image you selected is now loaded in. If you select **Freeze Palette** and then load in a new picture, the image you load will be forced into that palette. This is useful if you are working with a series of images for an animation or presentation program, and you want all of the images to use the same palette.

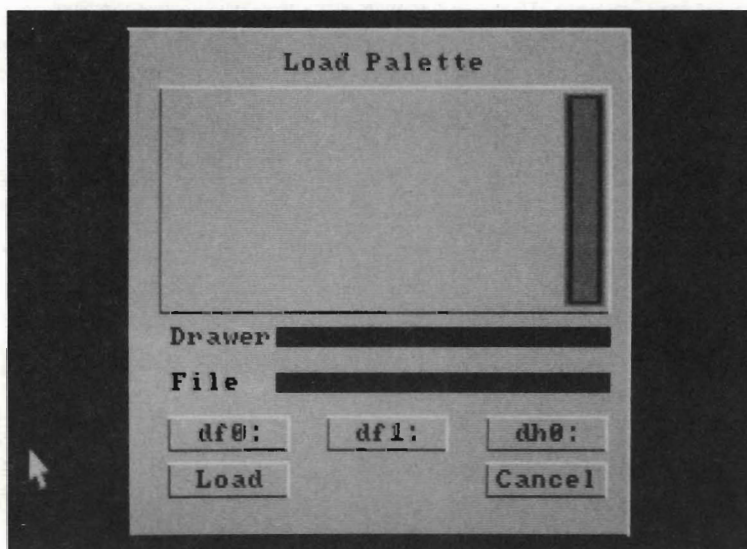


Figure 9.04
Load Palette
Requester

Print

If you want to print your Transfer 24 screen image, use this menu item.

Call up the image you want to print. Then activate the Print function. Make sure you've set your Preferences on the Workbench disk to the correct printer. If you want to cancel your printout, turn off the printer. After a brief wait, a requester appears asking you to check the printer or the cabling. Click **Cancel**, and you are returned to Transfer 24.

Histogram

This feature gives you information about the red, green, or blue information of the image in Transfer 24. Move the cursor to the right of **Histogram** in the menu when the submenu appears, and select either **Red**, **Green**, or **Blue**. In a moment two graphs will appear, showing the raw data and the data as Transfer 24 has adjusted it. The vertical axis is the number of pixels, the horizontal axis is the brightness (left to right is darkest to lightest). The adjusted histogram shows how the image is affected by your manipulation of the **Color** controls. Click **OK** to return to the main screen.

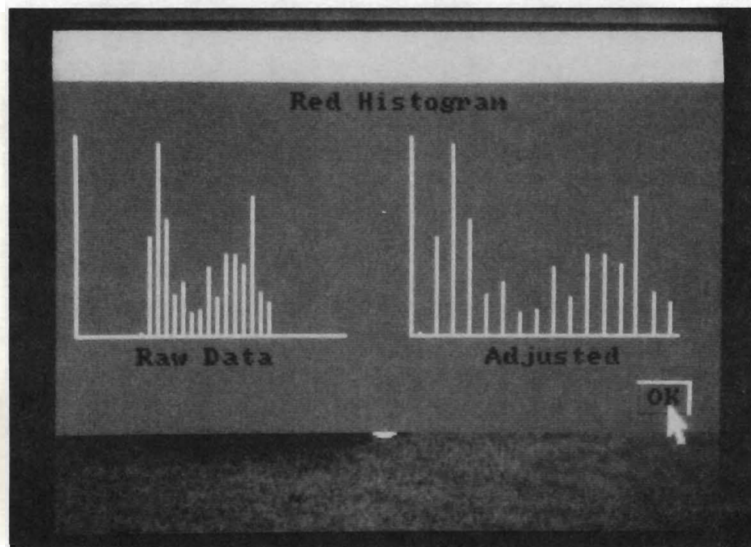


Figure 9.05
Histogram

About

This tells you the copyright information and the latest version number of your Transfer 24 software. Click **OK** to return to the main screen.

Quit

Pull down this menu item to exit Transfer 24 and return to the Workbench. If you haven't saved the image on the screen, this image will be lost when you Quit Transfer 24.

Controls

Color

Activating this menu item brings up the **Color Control** panel (see Figure 9.06). This may also be done from the keyboard by pressing the **right Amiga** key and the **c** key simultaneously. The **Mode** portion of the control panel determines how the digitized image will appear. When you first bring up the control panel in lo-res, **4096+** is highlighted. The image will appear using all 4096 colors of the Amiga's palette. This display mode is known as Hold-And-Modify (HAM).

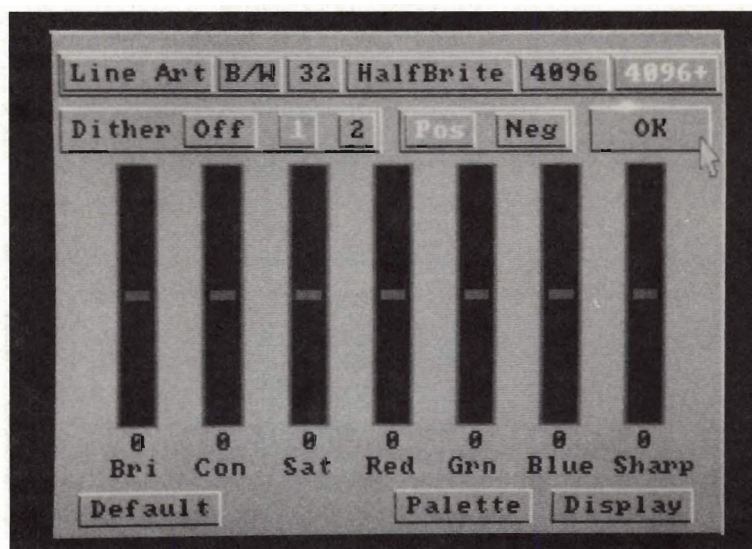


Figure 9.06
Color Controls

The image can also be displayed in line art mode (2 color) black & white (labeled **B/W**), 32 colors or less (16 colors or less is the only option available in med-res or hi-res; see the **Palette** menu), 64 colors (labeled **HalfBrite**) or **4096**, a good way to display the image while you are getting the color settings just right; this mode is faster than **4096+**.

Just below the **Mode** panel is the **Dither** control, which only affects images displayed in 64 colors or less. Dithering is the use of two colors mixed to produce an apparent intermediate shade and helps to fill in intermediate colors. A typical picture will contain thousands of subjective shades.

Setting the **Dither** to 1 or 2 instructs Transfer 24 to mix pixels of different colors to produce other colors when viewed at a distance. Try viewing an image with **Dither** on, and then turn **Dither** off and hit **Display** again. The difference should be readily apparent.

There are really three ways to dither with Transfer 24—**Dither 1**, **Dither 2**, and the **Sharpness** slider. Dithering can be used along with sharpness; the best results come from a combination of the two. The **Dither** control gives a pebbly texture to the image, while the **Sharpness** is grainier. The **Dither 1** setting is more subtle, while **Dither 2** is very useful for reducing the number of colors in image.

The panel directly left of the **Dither** control has two buttons, **Pos** and **Neg**. The **Pos** button creates a normal image from a negative. Activating the **Neg** button and then choosing display will create a negative version of the image, inverting all of the colors. This can be used to create a positive color image of a color negative.

There are seven sliders on the panel that control **Brightness**, **Contrast**, **Saturation**, **Red**, **Green**, **Blue**, and **Sharpness**. These sliders adjust your image for a better picture of just for special effects. To move the sliders, move the pointer onto one of the sliders and hold down the left mouse button. Drag the slider to the position you want and release the button. You'll notice that the number at the bottom of the slider changes from -47 to 48. You can record these settings for future reference.

Brightness

Like its namesake on a TV, this control increases or decreases the overall illumination of the image. Moving the brightness control even a little has marked effects on the image. At the maximum setting, the image is almost completely white; at minimum, the image is almost completely black.

Contrast:

Again, this control is similar to the control on your TV set. Raising the control makes whites white, blacks blacker, and colors more intense. Lowering it makes blacks and whites more gray and colors washed out. This can sharpen or decrease the distinctions between different areas on the screen. At maximum, the image will be reduced to a few very bright, garish colors. At minimum, the image is "flattened" to few shades with almost no distinctions.

Saturation

This works like the color control on a TV set. At minimum, the image is converted to black and white. At maximum, the colors are abnormally intense and cartoon-like. If the colors in the image don't seem vibrant enough, raise the saturation control.

Red

When set high, this increases the amount of red in the image; when reduced, the amount of red is diminished. At minimum, there is no red in the picture; at maximum, the picture is entirely in shades of red.

Green

When set high, this increases the amount of green in the image; when reduced, the amount of green is diminished. At minimum, there is no green in the picture; at maximum, the picture is entirely in shades of green.

Blue

When set high, this increases the amount of blue in the image; when reduced, the amount of blue is diminished. At minimum, there is no blue in the picture; at maximum, the picture is entirely in shades of blue.

Sharpness

Raising this control sharpens the image but increase the amount of "grain" or "snow". Lowering the control reduces graininess but will increase the amount of

“contouring” or “banding”. A typical value for sharpness might be 3-5, which will be particularly useful for making text appear sharper. At maximum, the image is “snow”; at minimum, the image is blurry and impressionistic.

Default

Clicking on this button returns all the control sliders to the neutral setting.

OK

This removes the control panel, but does not re-display the picture at any new settings.

Palette

This button takes you directly to the Palette controls.

Display

When you’ve adjusted the control panel to your liking, this control displays the picture with the new settings.

Palette

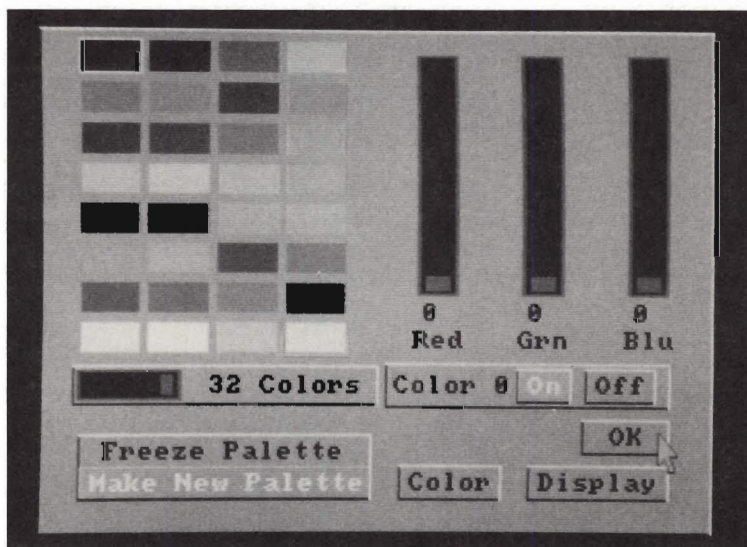


Figure 9.07
Palette Controls

This menu item activates the **Palette** control (see figure 9.07); the keyboard equivalent is pressing the Amiga key and the **p** key simultaneously. The **Palette** control has several main functions: to reduce the number of colors in an image, to display an image in a particular palette, and to modify the palette colors.

To use the Palette controls, first click on the button that says **32** in the **Color** controls, then click on the **Palette** button at the bottom of the **Color** controls. This takes you to the **Palette** controls. The palette in the upper right-hand corner shows the best 32 colors for displaying the image out of the 4096 possible. If you want to have less than a 32 color image, move the slider in the box labeled **32**

colors. The number of colors change as you move the slider. You also see a U-shaped outline move on the colored squares immediately above, showing the last color in the range you've selected. If the **Color** control was still set to **4096** or **4096+** colors, call up the color control and hit the **32 color** button (which, has changed to reflect the new number of colors you're asking for). Hit the **Display** button and exit the **Palette** control. The image will now be displayed with the new number of colors.

Why would you want to have less than 32 colors? This can be quite useful if you want to bring an IFF image into a paint program and have some colors left over to alter the image. You may only want to use 28 colors in the image, thereby reserving some colors for you to assign in the paint program. Fewer colors can save space. A 320 x 200 16 color image can be 32K, while an 8 color image is always 24K or less. This can be important when storing images in a database or sending them over a phone line, or just to save disk space.

You can also alter the individual colors in the palette to create interesting special effects. Point at the color you want to change and press the left mouse button. The colored square is now highlighted. If you move one of the Red, Grn, or Blu sliders to the right, you'll see the color change. When you've adjusted the colors to your liking, click on the Freeze Palette button, and then hit Display. The image will be redisplayed using the palette colors you've chosen. If you turn off the Dither control in the Color Controls, you can get some very interesting effects.

Make Palette/Freeze Palette

Transfer 24 is usually set on **Make New Palette** which means it will try to construct the best palette that it can for any picture you load, or after you have adjusted any of the color control settings in your current picture. If you do not want Transfer 24 to alter the palette then you must select **Freeze Palette**. From that point on, it will always use the current palette no matter what changes you make to the image. The correct way to load the original palette associated with a picture is: **Load** the picture, select **Freeze Palette** and then **Load Palette**.

Color 0 On/Off

When turned off, this control instructs Transfer 24 to make its palettes without using Color 0. This is useful if you plan to use the picture with a genlock and don't want "Color 0 Holes" to appear in the final output.

Display

This item is used whenever you have made any changes to the image and wish to see the results. It has the exact same function as the **Display** buttons on the **Palette** and **Color Controls** menus.

NOTES

Appendices

NOTES

Appendix A:

Keyboard Commands and Toolbox

Tools

Key	Command
a	Repeat
b	Scissors
c	Unfilled Circle
C	Filled Circle
d	Unfilled Continuous Freehand
D	Filled Continuous Freehand
e	Unfilled Ellipse
E	Filled Ellipse
f	Fill Off
F	Fill On
g	Coordinates/Mode toggle
m	Magnify mode toggle
r	Unfilled Rectangle
R	Filled Rectangle
s	Freehand tool
U	Undo
v	Unfilled Polygon
V	Filled Polygon
F1	Tool/Controls toggle
F2	Tool/Text Controls toggle
F3	Tool/Palette toggle
F4	Undo
F5	Repeat
-	Smaller brush size
+	Larger brush size
\	Brush shape toggle
.	One-pixel brush

Menu Commands

Key	Command
B	Restore Brush
H	Copy picture to Swap screen
N	Copy Brush to Swap
t	NoBackground off

Appendix A

T	NoBackground on
i	Font Requester
j	Swap screens
J	Exchange custom brushes
K	Clear screen to color 0, set current color to color 1
l	Load Picture Requester
L	Load Brush Requester
p	Save Picture Requester
P	Save Brush Requester
x	Flip brush horizontally
y	Flip brush vertically
z	Rotate brush 90 degrees clockwise
Z	Rotate brush 90 degrees counterclockwise

Drawing Modes

Key	Command
' or ~	Normal mode
1	Range mode
2	Lighten mode
3	Darken mode
4	Colorize mode
5	RubThru mode
6	Blur mode
7	TxMap mode
8	And mode
9	Or mode
0	Xor mode

Controls

Key	Command
n	center hotspot in Warping Locator and Hotspot Locator
F6	100% Hotspot, 100% Edge
F7	50% Hotspot, 50% Edge
F8	20% Hotspot, 20% Edge
F9	100% Hotspot, 0% Edge
F10	Hotspot Direction toggle (off, horizontal, vertical, both)
/	Texture Map Smoothing Off

?	Texture Map Smoothing On
!	Dithering Off
@	Pattern Dither
#	Random Dither

Palette

Key	Command
, or <	Pick Color

Text

Key	Command
\$	Text Smoothing toggle
%	Bold toggle
^	Italics toggle
&	Underline toggle

Miscellaneous

Key	Command
I	Interlace mode toggle
o	Overscan mode 352 toggle
O	Overscan mode 384 toggle
S	Save picture under current name and location
w	Whole screen operation
*	Both views (3D off)
(	Left view (even lines for 3D)
)	Right view (odd lines for 3D)
Esc	Toolbox open/close toggle; close magnify window
Return	Activate string gadgets to enter strings; OK on requesters.
Cursor keys	Scroll picture; scroll magnify window.
Space	Cancel operation in progress.
Tab	Default program settings (Transparency off, hotspot centered, Normal mode).

NOTES

Appendix B: HAM Mode and Digi-Paint 3

The Hold-And-Modify (HAM) display mode on the Amiga uses six bit planes to display images. This means that each pixel (*picture element*—one dot on the screen) uses 6 bits to determine its color. If the most significant or leftmost 2 bits are “00”, the remaining 4 bits (giving a value of 0 to 15 in binary) are used to look up the pixel’s color in the color table. This gives you 16 values from the possible 4096 colors available, which is why Digi-Paint 3 has 16 colors in the Color Palette. Each color has 4 bits worth of red, green, and blue information; thus, each color has a Red value from 0 to 15, a Green value from 0 to 15, and a Blue value from 0 to 15.

If the most significant two bits of a given pixel are 01, the pixel has the same color as the pixel to its immediate left, except that the last four bits can be used to replace the blue value of that pixel. If the most significant two bits are “10”, the last four bits replace the red value, and if the most significant two bits are “11”, the last four bits replace the green value.

The effect of all this is that you can display all 4096 colors on the screen at once, though you can’t go from black (red 0, green 0, blue 0) to white (red 15, green 15, blue 15) in one pixel; it takes three pixels to make that transition, since you can only modify one of the RGB values for each pixel. The transition would take four pixels on the screen. The first pixel is RGB 0-0-0; the second pixel is RGB 15-0-0; the third pixel is RGB 15-15-0; the fourth pixel is RGB 15-15-15 (white). HOWEVER, the ability of Digi-Paint 3 to use the 16 Color Palette means that for 16 of the colors you choose, that color can be immediately substituted anywhere on the screen without the transition just described. This technique is what gives Digi-View Gold its exceptionally sharp HAM images, and this feature also makes Digi-Paint 3 a very powerful tool.

NOTES

Appendix C: Digi-Paint 3 and ARexx

ARexx compatibility

Digi-Paint 3 is ARexx compatible. ARexx is a standard for interprocess communications on the Amiga, and Digi-Paint 3 can communicate with ARexx. This is important for the power user who likes to program; with this capability you can control Digi-Paint 3 completely from other programs you write. This capability can be used to write self-running paint demonstrations.

Please note that Digi-Paint 3 acts only as an ARexx “server”. Other applications and ARexx programs can control Digi-Paint 3. Digi-Paint 3, however, does not implement “macros” or any other function that depends upon ARexx.

A drawer labeled **heystuff** is on the Digi-Paint 3 disk. This drawer contains two small programs that send messages to Digi-Paint 3: **hey** and **heyline**. An example of how to use these programs is given in that drawer. If you have a copy of ARexx, you can use that program to write more sophisticated commands for Digi-Paint 3 to follow.

This capability could be used for such things as a digitizer or rendering interface, a way to generate quick color-filled backgrounds, or as an algorithmically precise pattern or painting generator.

Background

In the early days of the Amiga, the ROM KERNEL manuals were issued. These books provided a “never before seen” amount of detailed information. Information about a brand new and very technologically advanced computer—The Amiga.

One of the most unusual differences, between the Amiga and other computers in its price class, is the fact and nature of its multitasking ability. The Amiga was the first ‘home’ computer to be delivered with a multitasking operating system. It is still the only one that multitasks BY DESIGN.

One of the ways to take advantage of this multitasking is to write ‘script programs’ that either a) run various programs together in order to combine features of each, or b) programmatically control a user’s interaction with the system.

In the same pioneering spirit of the Amiga, Digi-Paint 3 was designed to take advantage of the machine’s multitasking, interprocess communication and built-in Intuition library. In this same spirit (and for the “advanced user” or programmer) we provide the following information regarding the backend-interface of Digi-Paint 3.

Any Port in a Storm (“diving in”, in a technical way . . .)

Digi-Paint 3 handles most of its user interaction through a single, named message port. The ‘name’ of the port is the filename of the program Digi-Paint 3. If Digi-Paint 3 is renamed, the port used will have the new name. All user menu and gadget selections can be performed by ‘sending a message’ to Digi-Paint 3’s port.

These messages consist primarily of 'action codes' (a list is provided in the following pages). Note that there are more messages than there are gadgets and menu selections. Also note that these 'action codes' are what is contained in the DigiPaint.KEYS (keyboard shortcut) file.

Again, the portname Digi-Paint 3 uses is the "program-name" it was run as (by AmigaDOS). Therefore, if Digi-Paint 3 is run from a picture's icon, and the icon's default tool is ":hp", then the port name used will be "hp". Multiple copies of Digi-Paint 3 may be run at the same time. The port name can be used to resolve which running copy of Digi-Paint 3 will receive a particular message.

A visual indication of the portname is provided on the bottom line of the "menu screen display". To see this: activate Digi-Paint 3, press and hold the right(menu) button and examine the bottom line of the "tool window". The portname is the very first thing on the bottom line of the menu screen.

What Is It?

The script capability of Digi-Paint 3 allows complete control over the program's operation by using a 'script' file instead of the 'normal' mouse interface. A script file is a simple text file that can be created with any text editor on the Amiga.

What Can It Do?

Script commands are available to duplicate the entire user interface: everything Digi-Paint 3 does can be done with a script. Another feature is available to the "remote/script" user: the scan-line interface. The scan-line interface is used to deliver a line of pixels to Digi-Paint 3 at "30 bits per pixel" resolution. That is, Digi-Paint 3 will dither 10 bits per color (r,g,b) per pixel, using the selected (matrix/random/none) dither type and plot the result on its "work screen". This can be used to generate patterned backgrounds, as a general-purpose renderer (rgb->ham conversion), and as a digitizer interface.

Concept: Foreground/Background

Digi-Paint 3's "frontbox" and "backbox" (move screen to front/back) gadgets not only rearrange screens, they also implement a foreground/background paradigm. When running in 'background', Digi-Paint 3 dispenses with 'real time brush display' and therefore runs faster. Also, Digi-Paint 3 will not insist upon being the 'frontmost' screen when running in background.

Concept: Action Codes

When communicating with Digi-Paint 3 through the 'remote' interface, each message sent to Digi-Paint 3 contains an 'action code'. Action codes are 4 character (1st one capitalized, other 3 lower case) 'commands' to Digi-Paint 3. There exists an action code for every:

menu item
gadget
mouse button/move "event"

These SAME action codes are used in the Digi-Paint.KEYS keyboard shortcut file. Each line in the ".keys" file contains a "raw" keycode and the action code that's supposed to happen when the particular key (or key combination) is pressed.

Concept: Amiga/Port Technical

Digi-Paint 3 uses a single port for all inter-task communication. This port is used for the 'normal' Intuition (mouse/gadget/menu) interface. This "exec message port" can also be used by both ARexx and AmigaDOS users. (ARexx is a trademark of Wm. S. Hawes.)

To communicate with Digi-Paint 3, its 'port name' must be known.

This name is displayed on the bottom line of the menu screen.

(A programmer can scan the "exec port list" to locate the port.)

Actually, the port name is the same name as the Digi-Paint 3 program file. If you rename Digi-Paint 3 to "xyz" then the port name will be "xyz".

Concept: Sending Messages

The way that action codes are communicated to Digi-Paint 3 is by send a message (containing the action code) to Digi-Paint 3's port. Two systems can be used to send these messages: either ARexx (a full-scale script language) or AmigaDOS. As an extension to the DOS method, Digi-Paint 3 can also be controlled from AmigaBASIC or any language that supports message passing.

A program named **hey** is supplied with Digi-Paint 3. It is a CLI type program whose function is to send a message to a named port. The command line format is:

1 > hey portname message

ex: 1 > hey Digi-Paint 3 Undo

This example will cause Digi-Paint 3 to perform an "undo" operation. Again, please note that ALL functions are available in this manner, including loading and saving of files.

AmigaDos / BASIC

AmigaBASIC can communicate with Digi-Paint 3 by using the **hey** program. The only extra "glue" code needed are statements setting up access to the DOS function **execute**. This means using the **DOS.bmap** file. It also means the AmigaBASIC must be started from the CLI (in order for **execute** to work properly).

ARexx

The complete script capability is available to ARexx users. With ARexx, the user gains a complete language with many type of control structure support (not possible with simple AmigaDOS command files). ARexx users should note, however, that Digi-Paint 3 does not take kindly to 'decimal points'. All numbers sent to Digi-Paint 3 should be 'integers without a decimal point'. All the same commands apply the same as for AmigaDOS script users.

Digi-Paint 3 acts as a 'server' with regards to ARexx. DigiPaint will not issue calls to ARexx, since it doesn't have a "macro" capability. Therefore all ARexx applications need to be run from 'outside' Digi-Paint 3 (e.g. from a CLI). The ARexx program should include the statement "address Digi-Paint 3" (assuming that "Digi-Paint 3" is the port name).

Command Summary

In general, there are 4 groupings of action codes: mouse, menu, gadget, and 'other'—codes that have no direct 'normal intuition interface' counterpart:

Mouse action codes are:

Move x y
Pend x y (pen down)
Penu (pen up)

These work exactly as if the mouse (normal) pointer initiated the action.

Some of the more common gadget action codes are:

Undo performs an undo operation
Scis goes into scissors/cut-out-a-brush mode (Pend, Move and Penu action codes actually do the cut)
Redo does a 'repeat' or 'again'-type operation
Pr gb r g b sets the paint color
Drre "draw rectangles" mode
Drci "draw circles" mode
Dotb "dotty (vs. smooth) brush" mode

Action Code List

Move x y moves the "drawing pen"
Pend x y starts drawing, saves an "undo"
Penu complete drawing, does "repaint"
Pr gb r g b sets paint color to r,g,b values

Clbx	close box, hides tool window, kills magnify, etc.
Babx	screen-to-back (background)
Frbx	screen-to-front (foreground)
Ksrt	right arrow key equiv., scrolls picture
Kslt	left arrow/scroll
Ksup	up arrow/scroll
Ksdn	down arrow/scroll
Undo	undo operation
Redo	again/repeat/repaint
Whsc	whole screen, as if brush stroke covered entire screen
Scis	scissor/cut mode toggle
Magn	magnify enable
Endm	ends magnify mode
Ccto	"copy color to" menu selection (follow with Cbx? code)
Pale	palette tools visible
Ctrl	control sliders visible
Txbt	text tools visible
Pick	pick mode toggle
Dith	matrix dither on/off
Rdit	random dither on/off
Bsmo	smooth-connected brushes
Doty	"dotty"—not connected brushes
Drln	line mode
Drre	rectangle mode
Drci	circle mode
Drar	ellipse mode
Floo	flood fill on/off
Flon	flood on
Flof	flood off
Dotb	single dot brush
Brt2	horizontal line brush
Brt3	vertical line brush
Brt4	left to right, topdown slant
Brt5	left to right, bottomup slant
Brt6	small squares

Brt7	small circles
Bsz1.. Bsz7	standard brush select, sizes 1 to 7
Tbbo	text—bold
Tbit	text—italic
Tbun	text—underline
Clrs	clear screen
Rubt	rub through paint mode
Czer	color zero (genlock function)
Aali	anti-alias toggle
Aaon	anti-alias on
Aaof	anti-alias off
Tran	transparent brush color
Hvof	2way blend off
Hvar	2way h/v blend toggle
Harr	1way horizontal blend toggle
Varr	1way vertical blend toggle
Shva	toggle button, 2way stretching
Shar	1way horizontal stretching
Svar	1way vertical stretching
Cbx0	color 0 (palette color select)
Cbx1-Cbx9	colors 1-9 select
CbxA-	colors 10-15 select
CbxF	
CbxG	front color of range
CbxH	back color of range
CbxI	current color (deselects range color)
Swap	swap screens
Cpic	copy picture to swap screen
Dswa	delete swap screen
Mswa	merge swap screen with 'front' picture

Load	picture load requester
Save	picture save requester
Prin	print requester
Quit	(immediate quit—no save)
Clsc	close screen
Opse	open screen
Csiz	sizing requester
Pund	palette—undo
Rema	palette remap
Lobr	load brush
Sabr	save brush
Font	font load requester
Flix	brush flip x/horizontal
Fliy	brush flip y/vertical
Rotm	brush rotate minus 90 degrees
Rotp	brush rotate (plus) 90 degrees
Pmcl	paint mode clear/normal
Pmdn	paint mode—darken
Pmln	paint mode lighten
Pmso	solid range paint mode
Pmco	paint mode colorize
Pman	paint mode “and”
Pmor	paint mode or
Pmxo	paint mode xor
Sizi	Sizing/txmap/warp mode
Blur	blur mode
Clwb	close workbench
Opwb	open workbench
Okls	ok to load/save
Fnam	filename string ex:“FnamAFILENAME”
Dnam	directory name string
Dlva	deliver a line of (alpha/ascii) rgbs to Digi-Paint 3 format is #rgbs, line#, #(r,g,b) where “#(r,b,g)” is 3 separate 10bit color values
Dlvb	deliver a line of (binary) rgbs to DigiPaint format is same as “Dlva” but all values are 16bit words

Aoff	all modes off
Pr gb r g b	paint color
Tr gb r g b	transparent color
Dflt	(re)load default files, picture, keyboard shortcuts
Vwpg	view page overscan
Vwps	view page severe overscan
Pot0 #	center blend pot (# is 16bit, from 0-\$ffff)
Pot1 #	edge blend pot
Pot5 #	warp amount
Poth #	blend, horizontal center (2way gadget)
Potv #	blend, vertical center
Spoh #	stretch horizontal position
Spov #	stretch vertical position
Nnar	picture size 32 narrower
Nwid	32 wider
Nsho	shorter 40 lines
Ntal	taller 40 lines
Nlsh	2 lines shorter
Nlta	2 lines taller
Nioo	interlace on/off
Nion	interlace on
Niof	interlace off
Ndflt	restore/default size
Nsca	new size—cancel
Nsok	new size—ok (changes size)
Txup	tile x, increment
Txdn	tile x, decrement
Tyup	tile y, increment
Tydn	tile y, decrement
Maxc	max,mid,min setting for center blend
Midc	
Minc	
Maxe	max,mid,min setting for edge blend
Mide	
Mine	

Maxw	max,mid,min warp amount
Midw	
Minw	
Coor	coordinates display toggle
Coon	coordinates on
Coof	coordinates off
Xlef	x-specs, left eye paint
Xrig	x-specs, right eye paint
Xbot	x-specs, simply turn on "glasses", no paint effect
Xoff	disable x-specs
Bswa	swap brush
Bcop	copy brush
Bdel	delete brush
Pfil	use palette from file
Pcur	use current palette
Ptog	palette from file/current toggle
Sron	shrink hires on
Srof	shrink hires off
Sroo	shrink hires toggle on/off
Oklo	ok, continue load (after palette select)
Pcmo	print "more" copies (incrementor)
Pcfe	print "fewer" copies
Pcok	print—ok start printing
Pcca	print—cancel print request

NOTES

Appendix D: Technical Support

For technical support on Digi-Paint 3 and other NewTek products you may call or write to:

NewTek Technical Support
115 West Crane Street
Topeka, KS 66603
Phone: (913) 354-9332

The Tech Support phone lines are staffed from 9:00 a.m. to 5:00 p.m. Central time Monday through Friday.

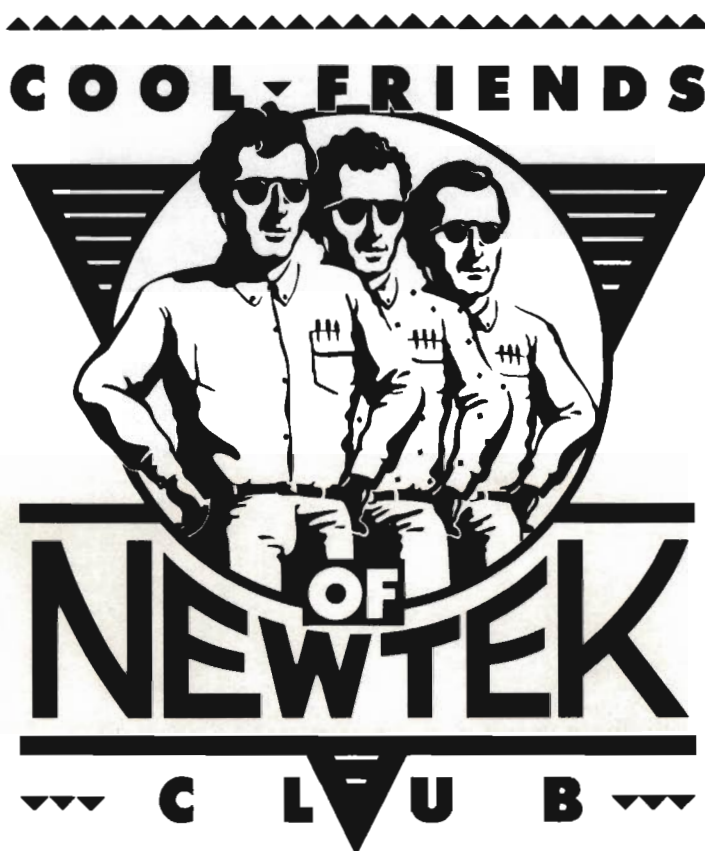
NewTek also handles Technical Support through its BIX conferences and we welcome Digi-Paint 3 programmer Jamie Purdon to the BIX support group. For continuing support and application ideas, we encourage Digi-Paint 3 and ARexx users to join the NewTek DigiPaint conference on the BIX (Byte Information Exchange) network. At the BIX command prompt, simply type "j newtek digipaint".

Cool Friends of NewTek Club

Have you ever dreamed of owning a desktop fusion reactor? Have you considered producing your own movie? Are you troubled by such mysteries as why *that fifth dentist doesn't recommend sugarless gum for his patients who chew gum*? If you can answer yes to any of these questions then you may be eligible for The Cool Friends of NewTek Club, where scientific inquiry isn't just a good idea, its the law. As a member, you will receive NewTek Demo Reels, NewTek Lifestyle Kits, information on new products and other essential items. To join, write to:

NewTek Incorporated
CFONC Application
115 West Crane Street
Topeka, KS 66603

or call (913) 354-1146. Be seeing you . . .



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